THE HEALTH MAGAZINE

HYGEIA

THE MIDDLE YEARS

see page 264

APRIL · 1941 · 25c

GUARD PRECIOUS EYESIGHT
GET RIGHT-SIZE BULBS

7½, 15, 25-watt . . .	10¢	40, 50, 60-watt . . .	13¢
75 and 100-watt . .	15¢	150-watt .	20¢

But sometimes parents ARE careless!

THEY allow children to play and read by light that strains their eyes. In fact, a recent home survey showed that 4 out of 5 important light sockets were filled with the wrong-size lamp bulbs.

It can't be because either bulbs or electric current are costly. Even the 100-watt G-E MAZDA lamp costs only 15c, and you can light it a whole evening for only about a penny!

So hold fast to that twinkle, little girl. You'll need it all through life. Ask your parents to help you—

1. ***By having your eyes examined*** regularly by a competent eyesight specialist.
2. ***By keeping light sockets filled***—with a total of at least 100-watts in every reading lamp.
3. ***By using G-E MAZDA lamps*** . . . the kind made to Stay Brighter Longer.

Remember, ***you can't buy a second-hand twinkle!***

G-E MAZDA LAMPS

GENERAL ELECTRIC

MADE TO STAY BRIGHTER LONGER

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

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FORECAST

Coming soon is the first of five special articles on sex education by outstanding American authorities.

Ideas about sex education have changed. Not so long ago it was considered a calamity when a child of 4 or 5 acquired any real information about sex. Parents were concerned not with planning how to give such information, but how to avoid giving it.

Today, with our greater knowledge of human development, we realize that a great deal of learning about sex inevitably takes place during the first few years of a child's life. What he learns during this period is of special significance, because it probably colors many of his later ideas and emotions.

Begin this absorbing series in the May issue of HYGEIA, with "Sex Education for the Preschool Child," by Harold E. Jones and Katherine Read of the Institute of Child Welfare, University of California, Berkeley, Calif.

"Should they marry?" was once a question that was easily answered. If the man was able to support a wife, society did not stop to consider whether the marriage might be suitable. When the marriage crumbled and the nuptial vows became worthless, it was "just one of those things" —something that could not be foreseen, or prevented.

But the newer philosophy—that of searching heredity for generations past for transmissible defects—has grown to be equally harmful in the hands of the amateur geneticist.

Frank Howard Richardson, M.D., in "Should They Marry?" evaluates the work of the trained geneticist and describes the alternatives open to the couple who must not have children.

"Warts," says R. H. Rulison, M.D., "appear first as a slight elevation, skin-colored and with a smooth top. After a few months, the surface becomes roughened and the wart rises above the surrounding area."

What causes them? Are they a form of cancer? What are the after-effects? Do they occur more frequently on men than on women? Are they caused by handling toads and frogs?

You will find the answers to these questions and many others in "The Common Wart" in the May issue.

Out of the welter of scientific research during the last several years comes three or four definite conclusions to answer the question: What causes dental decay?

Don Chalmers Lyons, D.D.S., throws a new light on the subject in "Why Teeth Decay."

HYGEIA

THE HEALTH MAGAZINE

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Unsolicited manuscripts will be considered by the Editor but must be accompanied by a stamped self addressed envelop to insure return if rejected. Manuscripts should be typewritten, double-spaced, and the original, not the carbon copy submitted. All rights reserved.

What can a man believe in?

WHY do we print a picture of a boy and his dog?

It is to remind you that in this changing world there are some things that never change. Things such as the loyalty and devotion of a boy and dog to each other.

A trivial bit of sentiment? Not at all. In fact, it emphasizes a great truth. Basic human nature never changes.

Have such concepts as *home, mother, children*, lost their meaning?

Faith, character, ideals—are these mere words?

Temporarily the old values may seem to be out the window. Actually, they are as unchanging as the Pyramids.

Business, too, has traditions that stand like a rock. Traditions such as believing that the priceless ingredient of every product is the honor and integrity of its maker.

LOOK FOR THE CONTROL NUMBER
. . . ON EVERY SQUIBB PRODUCT

Every Squibb product—whether made especially for prescription by the medical profession or for proper everyday use in the home—bears an individual control number. It means that each detail in the product's making has been checked against Squibb's high standards and recorded under that number at the Squibb Laboratories. Look for the name and control number when you buy. You can believe in Squibb.

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Manufacturing Chemists to the Medical Profession Since 1858

THE PRICELESS INGREDIENT OF EVERY PRODUCT IS THE HONOR AND INTEGRITY OF ITS MAKER

Copr. 1940 by E. R. Squibb & Sons

"The Adcomber"

looks at Hygeia ads

Life flows smoother for baby—and mother—when the milk intake works 100%. And a nipple can make all the difference! Note what nurses say about Evenflo, page 337.

• • •

Who said "sugar coat the pill"? Now a diverting duck seat encourages baby to mind his daily duties. It's a double duty duck too . . . serves a safety purpose. Worthy the approval of both mother and child, and backs up the doctor's orders besides. Seein's believin'! Page 337.

• • •

Budget-conscious parents will welcome the good news about Wee Walker shoes on page 340. For did you ever see anything grow like children's feet, or need replacement so often as their shoes? No, we never—but now we know something to do about it . . . and in a truly hygienic way too.

• • •

Who *wouldn't* enjoy a new breakfast dish? And if you've tried bran before, you still have a new experience in store. For National Biscuit has *doublemilled* its 100% bran—improving the flavor and modifying the action. *Now* they *have* something, say we . . . Page 309.

• • •

If school is "hard" or "dull" or "no fun" for your child, his eyes *might* be the reason. Have you checked with a competent examiner? When you do, he may prescribe helpful Soft-Lite Lenses, for the reasons noted on page 347.

• • •

Mothers-to-be will find two good suggestions in one short paragraph—one for themselves, one for feeding baby. See it under "Expectant?" page 340.

• • •

"Did you know" that bread is one of the best and cheapest sources of food-energy you can give a child? That it is nearly 100% digestible? That it contributes food-energy needed for physical fitness? That Americans must be physically fit if America is to be strong? Pictures tell the story, page 303.

• • •

"Listen, Sadie," says Min—and we *all* did—from cover to cover of this choice little book of hospital hilarity. But never mind getting out your 35 cents unless you like your comedy with appropriate illustrations and a spot of romance. Might amuse some friend lately out of the ether, though. Clever Easter gift, too. Florence B. Wikingsson. Page 333.

• • •

"Tailor made" to baby's needs for exercise and amusement is the Taylor-Tot. Indoors a walker, outdoors a stroller, later on—with inexpensive accessories—a coaster or pedal car. Ball bearing wheels make it fun for the youngster, welcome in the home. Page 337.

• • •

Some sense to Sani-Sheet! Absorbent—waterproof. For cribs or diaper pads. Comfortable, boilable, odorless. Requires no ironing; eliminates pads and extra sheets . . . A convenience, you say? A snap! Page 344 for details.

THE ADCOMBER.

Who's Who IN HYGEIA

SCHUYLER BALDWIN TERRY received his Ph.D. in History from the University of Chicago. He studied, also, at the University of London, at the British Record Office and at Oxford. His thesis, "Financing the Hundred Years' War" was published by the University of London. Later, it was quoted in debates in Parliament as final authority in refutation of certain Italian claims in settlement of the Italian war debt.

He foresaw, in the summer of 1938, a world cataclysm in the making, and wished to do something constructive for which his experience and training fitted him.

Appreciation of Canada; our trade with Canada, what Canada's purchases in this country mean to us; how we can help Canada by traveling in Canada, and thereby help ourselves seems to Dr. Terry of vital importance. He has been devoting his time to driving home this message to American citizens. The response, he writes, has been most gratifying.

His article, "A Vacation in Canada," appears on page 291.

HENRY ALFRED IMUS, Ph.D., author of "Visual Efficiency," page 273, was born in Holland, Mich. He attended high school in Lansing, Mich. and received both his bachelor's and master's degrees at the University of Rochester.

Having completed the requirements of premedical training, he became interested in the psychology and physiology of vision, and continued graduate work and research in these fields. While at Harvard, he was associated with two clinics which dealt with the visual and reading problems of children. Since coming to The Dartmouth Eye Institute, he has conducted investigations of the various factors involved in these two problems. The chief project has been a study of the Class of 1940 of Dartmouth College by means of a survey of the entire class followed by complete eye examinations and intensive case studies of selected students.

Other investigations include a genetic study of the ocular conditions of 100 school children of Norwood, Mass.

Along with this research in his special field, he has collaborated with other members of the staff of The Dartmouth Eye Institute in the invention and application of methods for the measurement and treatment of anomalies of binocular vision and space perception, particularly as affected by aniseikonia.

JOHN NEWTON BAKER, author of "Where Will Your Children Learn About Sex?" on page 346, was born in Alabama in a house fronting Mobile Bay. One of his earliest memories is that of standing on a creaky wharf, watching ocean-going vessels sail by. He has never outgrown his love for his native state.

He began his college training at Howard College, Birmingham, Ala., where he was assistant editor of a college newspaper; continued at the University of Alabama, and later at University of Tennessee, where he received his master's degree.

Under the inspiring tutelage of Dr. William E. Cole, University of Tennessee, he became interested in sociology and now holds an honorary fellowship in the Sociology department, University of Wisconsin, where he is continuing work toward a Ph.D. degree in sociology and education. Writing and college teaching are his two ambitions.

Mr. Baker met his wife on a blind date; now heartily endorses blind dates. Tennis is his favorite sport; also he underwrites the United States Post Office by buying stamps for collecting, his favorite hobby.

His first book, "Sex Education In High Schools," Emerson Publishing Co., N. Y., will be out in a few months. He is now working on a second: "American Courtship, Marriage, Divorce: 1915-1942."

LETTERS FROM *Readers*

Meditation on Swing

To the Editor:

Many thanks to Anderson M. Scruggs for "Meditation on Swing," in the March issue of HYGEIA. I have cut it out, framed it, and it now hangs in my office as required reading for students.

Guilford, N. C. F. C. HAYES.

A Student Reference

To the Editor:

HYGEIA contains much information which creates interest in achieving good health, and the matter is presented in an attractive style with good illustrations. It is, therefore, highly suitable for, and interesting to, high school students. We place it on our magazine shelf, and it is read each month by a large number of people. We keep the back numbers on file. Fortunately, HYGEIA, is indexed in the Readers' Guide to Periodical Literature, which is our magazine index. There we often find references to articles in HYGEIA when our students are looking up different health subjects, and we use the magazine in this way for reference.

CHARLOTTE E. SMITH, Librarian.

Chicago, Ill.

Hygeia's complete index to volume 18 (January to December 1940) is now available. A copy for reference may be secured by sending a stamped, self addressed envelop with your request to Mr. F. V. Cargill, Circulation Manager, Hygeia, 535 N. Dearborn St., Chicago.—ED.

Raw Milk Menace

To the Editor:

As you know, Kansas City, Kan. is actively trying to improve its milk supply. To date we have been able to increase the percentage of pasteurized milk sold in the city from 51 per cent at the beginning of the year up to almost 90 per cent at the end of the year 1940. This was made possible by the installation of 16 farm dairy pasteurizers.

In 1940 we had 82 cases of undulant fever due to using raw milk and cream which was sold either in the city, or at milk stand just outside the city. Of this number, 52 cases were residents of Kansas City, Kan. and 13 were residents of Kansas City, Mo. An examination of cows and their milk on 74 raw milk dairies revealed that 72 dairies had Bang's infected cows in their herd. Brucella abortus, the organism causing undulant fever in humans, was repeatedly isolated from the milk.

Now comes the March 1940 issue of HYGEIA with an excellent article entitled "The Raw Milk Menace" by Harold J. Harris. This article is so well prepared that we are interested in obtaining reprints in volume to give to every raw milk consumer in the city. We would like the front page of the reprint carry the picture of the cows and the title of the article "The Raw Milk Menace."

RAGNAR T. WESTMAN, M.D.,
Director of Health.

Kansas City, Kan.

Articles appearing in Hygeia can be reprinted at reasonable cost. Inquiries may be addressed to Hygeia, The Health Magazine, 535 N. Dearborn St., Chicago, Ill.—ED.

Suggestion

To the Editor:

Since colds are so contagious and well-meaning friends are so thoughtless, I am prompted to write the following suggestion:

A large printed sign in all hospitals and homes where there is illness.

NOTICE
IF YOU HAVE A COLD, PLEASE SEE YOUR DOCTOR INSTEAD OF OUR PATIENT.

WRAY LEANORE WINGBLADE.

Detroit, Mich.

IS YOUR SKIN DRY?

... Then use Marcelle Skin Lubricating Cream to help replace oils lost by exposure. See coupon below for details of how to get a generous sample.

BEAUTY NEEDS FINE CARE

● Marcelle Skin Lubricating Cream is only one of many "Safe Cosmetics" by Marcelle, as an aid to women with sensitive skins and to those who are allergic.

The reputation and performance of Marcelle Hypo-Allergenic Cosmetics are familiar to physicians and their patients everywhere. Patients, following their doctor's prescription, have been satisfied users of Marcelle Cosmetics for over 8 years.

Of Course . . .

You will want to know the full details about these cosmetics which are free of known irritating substances and still are pleasing beauty aids.

● A folder called "How to Guard and Enhance Your Beauty" is yours for the asking. It contains a make-up chart, full price list of Marcelle Hypo-Allergenic Cosmetics and outlines of special care for Dry Skin and Oily Skin. For samples of Marcelle face powder in your shade and skin lubricating cream send 10c to cover mailing. Use coupon below.

Established 1874

Marcelle COSMETICS

ACCEPTED FOR ADVERTISING IN PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION

1741 N. Western Ave., Chicago.

Send me your folder, "How to Guard and Enhance Your Beauty," and samples of skin lubricating cream, cleansing cold cream and powder. I enclose 10c.

☐ Blonde ☐ Brunette ☐ Auburn

Name.....

Address.....

City.....State.....

H-3-41

CANCER

Pictures, Inc.

An electric knife fed by high-frequency current is used primarily for delicate surgical intervention of the brain, eye or lung. Supplied by the machine in the background, its "blade" seals blood vessels, controls hemorrhage and blocks the spread of cancer cells.

FOR SOME YEARS it has been customary to declare April as "cancer control month." The President issues a special announcement and an intensive educational campaign is conducted throughout the nation. This year the American Society for the Control of Cancer is emphasizing the importance of periodic, comprehensive physical examination as a means of locating cancer in its early stages, when the condition is controllable and correctible.

As part of this campaign, three years ago a cancer prevention clinic was established by the New York Infirmary for Women and Children. Men and women who wish the protection of a comprehensive check-up can visit this cancer clinic. In three years, 600 people have been examined; 10 per cent were found to have cancer, of which 98 per cent of the cancers were in an early and apparently curable stage.

In the Women's Medical College of Pennsylvania, Dr. Catharine Macfarlane has demonstrated the value of internal examination, particularly for women past 30. She began with 1,200 volunteers between the ages of 30 and 80 who agreed to have such an examination twice a year for five years. In the first series of examinations there were found four early cancers of the organs associated with childbirth and 249 minor ulcers, erosions or other small growths of the tissues which were not considered to be cancer but which are sometimes called precancerous. It is believed that the irritation associated with such lesions may eventually result in cancer. In the next two series of examinations no more cancers were found, but a few new lesions of the type described were located.

Certainly these results, while not covering a tremendous number of people, are significant. During 1939, 150,000 lives were lost because of cancer. It is, therefore, rightly called the major health problem of modern times. No longer, however, is it necessary to view with despair or hopelessness the possibility of curing cancer in any human being.

Throughout the nation increased study is being given to every form of cancer. In one hospital in New York there are records of 700 cured cases of cancer of the breast. The files of the American College of Surgeons contain reports of 9,886 cases of cured cancer of the breast. Indeed, the president of the Cured Cancer Club of the American Society for the Control of Cancer, Dr. Anna C. Palmer, is 82 years old. Many years ago she had a cancer of the breast.

The campaign of education that has been carried on continually now for more than twenty years is unquestionably producing results. We know today that cancer must be taken in its early stages to be cured. In 1920, the average delay in the case of cancer of the breast from the time the patient noticed the lump until she came to the hospital was eleven months and seven days. In 1940, the records of the same hospital indicate that the lapse in time has been cut more than one half, so that it is now four months and four days. During the same period of time, the number of five year cures, which means that the patient has had no further symptoms, has increased 30 per cent.

Dr. Frank E. Adair reports some other interesting figures about the improved record of cancer. Twenty years ago cancer of the tonsils was hopeless. Today one out of five cases is cured by the use of radiation. Twenty-five years ago it was sometimes possible to save one out of twenty cases of cancer of the tongue. Today the rate is one out of four saved.

Unquestionably, with continued research and with the new knowledge that is becoming available the outlook for the control of cancer grows increasingly brighter.

The MIDDLE

A man in his middle years is still able to play a reasonably good round of golf, or an easy set of tennis, but he is risking his health and even his life if he refuses to admit that he is not physically the same as he was in his early 20s

By SMILEY BLANTON

"LAST WEDNESDAY was my fiftieth birthday and I went for my usual physical examination. The doctor said I was in fine shape. Heart in good condition and blood pressure normal. 'A man is as old as his arteries,' you know. I don't feel a day older than I felt when I was 21. I can still beat all the young fellows around here playing tennis, including my oldest boy, Henry."

A year later I watched Henry Wood Sr. play his first game of the season with Henry Jr. Wood Sr. simply could not handle his son's hard drives and smashing returns. The first set went 6-0, the next 6-1, in Junior's favor. By that time Wood's face was deeply flushed and his breath came in short gasps.

"Shall we take a rest, Dad?" called his son, tactfully.

"What do you think I am," panted Wood, "a doddering old man on his last legs?"

The boy went on to take two more sets and at the end Wood was on the point of collapse. He slumped heavily on the nearest bench. His face was drawn, his eyes lacked luster, his shoulders were hunched, his hands limp and trembling. He looked old and beaten.

He hadn't just lost a tennis match; he had been deposed from an imagined state of youthful physical superiority, fondly cherished. The defeat did him serious damage emotionally. He had never adequately adjusted himself to the fact that at 50 he would not be as strong and vigorous as he had been in his early 20s.

Quite another view of things is that of Ed Germain, mechanic in the garage across the street. Clear-eyed, beautifully muscled, agile, obviously fit, he had been an all-round athlete in high school, and after that on the sandlots. Now in his late 30s, he has no illusion that he is as good as he was at 21.

Ed's eldest son, a sophomore in high school, came along dangling a heavy catcher's mitt from his left wrist. His ambition is to be catcher for the school team. His dad had a reputation for speed and curves in his high school days. What better practice for an aspiring young catcher than some of that tricky pitching, and the more of it the better?

"Lay off your old man," was Ed's cheerful answer, "my arm isn't what it used to be and I don't kid myself that it is. Do you want me to throw it out of joint? If I do, maybe you'll do my job for me? Pick on some one your own age."

Ed's feeling is that although athletics are fun, they must be kept for refreshment.

"You have to use your head," he says, "and if you ask me, I get as much fun out of that as kids do out of sports, and maybe more."

Ed's parents made a good job of bringing him up, whether they knew it or not; whether they had learned from books, or learned it from realistic French ancestors. He grew up to meet reality with clear eyes, unclouded by useless regrets, determined to make the best of it. He learned not to grieve, or be resentful, over talents that he lacks, but to concentrate on those he has. He did not succumb to the unwise behavior and tragic results of John Anderson, a member of the country club.

Anderson was president of a large construction company and worked hard five days a week, with no exercise. On Saturdays and Sundays he played 36 holes of golf—18 holes in the morning, a hasty lunch, maybe a quick drink, then another 18 holes in the afternoon. If time permitted, he would top off his day with a game of tennis.

Last spring he resumed that program and collapsed on the golf course because of coronary thrombosis. He was forced to stay in bed for several months, and now has a permanently damaged heart.

This matter of inevitable physical deterioration constitutes one of the most fundamental problems of middle age. How to meet it wisely and how gradually to substitute mental activity and recreation as the physical powers wane requires both knowledge and courage. Fortunately, the mental powers, unlike the physical, do not necessarily deteriorate with age.

A man in his middle years can still walk and hunt and play a reasonably good game of golf, or an easy game of tennis, but he risks his health and even his life if he refuses to admit that he is not physically what he was in his early 20s.

YEARS

"Lay off your old man," was Ed's cheerful answer. "My arm isn't what it used to be, and I don't kid myself that it is."

Purely physical strength and agility are, after all, found in the highest degree not in man but in the gorilla, the lion and the horse: mental achievement and emotional balance are the province of man. The man who is properly aware of that essential truth can cheerfully abandon, year by year, more and more of his physical power as he grows mentally stronger, wiser and more skilful.

Changes occur in the glands, in the heart, in the blood vessels and in the muscles. The body past its prime no longer has its maximum efficiency or resiliency. No matter how sincerely any one of 45 or 50 may believe and say, "I am just as good as I was at 20, and I can do just as much work as then," he is wrong. With that attitude the middle years are dangerous.

Unfortunately, the mind all too often also loses resiliency. For the second problem most often found is a refusal by middleaged men or women to accept or even consider the new

and perhaps better ways and ideas of younger people, whether they are competing or associating with them.

The head of a certain laboratory is chief of a large staff and does not allow his younger associates freedom in their work. He refuses to permit them to share the initiative, or to act on their own. As a consequence, his organization is slowly falling to pieces. He is failing in his duty to himself and to his profession. He is also missing a lot of personal satisfaction and happiness.

This reluctance in older men to delegate authority is one of the greatest hindrances to a successful middle age. No man, no matter how gifted, can have a monopoly on ideas; contributions from other people, whether from subordinates or not, should be welcomed. And they are welcomed by men who are concerned more with the progress of science than with personal glory.

Another man, a head medical officer, feels differently. He readily accepts suggestions and is eager for his men to try new technics. He is not dismayed at the idea that sooner or later he may be replaced by one of his associates. He has such a rich philosophy of life that he has built up an organization that will go on long after he has retired. He is loved and respected by those who work with him.

The third fundamental problem that occurs among men and women of middle age is a state of anxiety which is not due primarily to external difficulties, however much the victim may think his troubles are tangible ones—financial or domestic. It is the anxiety called by psychiatrists "infantile anxiety" because the roots of it go deep into the childhod of the person. It is fixed there by unwise management or attitudes of a parent or nurse. But often it does not become an extreme problem until it is brought to the surface by the narrowing of the personal power, due to age.

An obvious example of this state of anxiety is the case of a 60 year old woman who is comfortably off, with a permanent income of such nature that it cannot very well be cut off, or even diminished, by future developments. But now, as she has become older, she is terrified by social changes. According to her, the increasing unconventionality of young people means they are degenerating; the economic depression and the government's measures to meet it mean that the country is no longer safe; the growth of labor organizations means that revolution will occur soon. She cannot see or hear about a protest parade of any sort without believing that mobs are about to rule our streets.

This woman is a nuisance to her friends, who are in the same economic and social situation as herself, but who take a sane and unfrightened view of things. Her children long ago set her down as a "calamity howler" and no longer pay any attention to her, nor find any pleasure in her company.

Obviously, her fear is not due primarily to social change, or to the attitude of the country's young people, whatever their faults and deficiencies. It is an unreasoning and unadmitted fear of her own failing strength, transferred by the unconscious mind to conditions which always occur in every society in the course of time.

Of course, there is a place for a reasonable and critical evaluation of unwholesome social changes and of unwise behavior in young people, but this woman's blanket indictment of all change and of all young people indicates an unreasoning, deep-seated anxiety which is serious enough to be treated by a psychiatrist.

The need for wisdom in growing old becomes acute if disease is present, thus speeding the process of aging and making physical deterioration more severe. Then, more than ever, psychologic adjustment becomes urgent. Two illustrations will serve to show how two persons met their problem—one unwisely, the other wisely.

The first was a woman who developed a cancer of the stomach in her middle years but was successfully operated on by a skilful surgeon. She lived without physical illness for ten years, but she filled this decade with constant worry and fear. She was continually terrified that the cancer would recur and she spent a senseless amount of time fussing over her diet and digestive functions. Her ten years were hardly worth living.

The other case was a man who ran a large business. At the age of 60 he had a heart attack which forced him to resign the presidency of his company and to begin to live a restricted life. His physician wisely told him:

"You may live a good many happy and useful years. Cutting down on the amount of work you do doesn't mean that you need to become a chronic invalid. Go ahead with your services on various philanthropic boards. Keep your business connections to some extent. But don't strain yourself, take proper rest and take this opportunity to do *(Continued on page 328)*

What about your SKIN?

Seldom is it realized that skin care is highly important in body economy

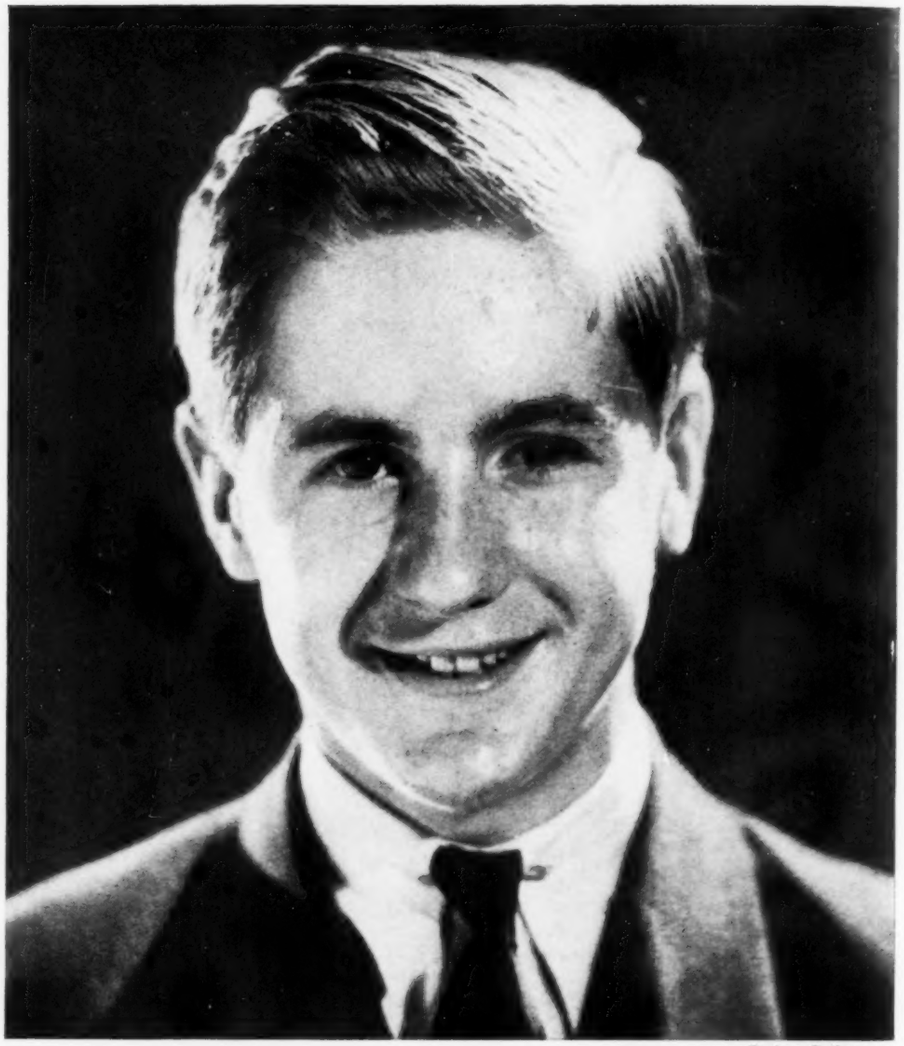
By MAURICE J. COSTELLO

THE IMPORTANCE of the care of the skin during the last few years has received wide recognition. We see everywhere advertisements of products for the care of the skin. But seldom is it realized that the hygienic care of the skin is of primary importance in the body economy. Skin specialists agree that the chief functions of the skin are that it is a protective covering of the body and that it is an important organ of secretion and elimination. The layman does not usually think of the skin as an organ of the body, but it is one of the most important. No one could live if an extensive area were destroyed. Also, the numerous touch corpuscles of the skin make it highly sensitive to heat, cold and injury. But its most important function is that it serves as a fine mechanism for the regulation of the body temperature.

The skin acts as a marvelous waterproof covering, because of its numerous oil glands and its outermost layer of horny cells. Even

though immersed in water for long periods of time, human beings will not absorb water through their skins.

The anti-infective and allergic functions of the skin are truly remarkable. At all times there are millions of germs and fungi imperceptibly covering the surface of the body. They are rendered innocuous because of an inherent skin immunity to most microorganisms. It is only when the skin is broken by injury that it falls victim to virulent organisms, or to those which under ordinary conditions do no harm. By testing the skin by means of various skin tests such as the tuberculin, Schick, food and pollen tests the secrets of the body in regard to previous infection, immunity and sensitivity can be accurately determined.



Ewing Galloway

Oily skin occurs frequently at the physiologic crises of life such as puberty and adolescence. It may be caused by an imbalance of the ductless glands, or by a diet excessively high in fatty foods, leading to acne or other infections.

The skin is an effective thermostat. It affords a cooling system in summer and a heat regulating mechanism in winter. Under conditions of health a normal degree of temperature, 98-98.6 F., is maintained with equal facility in the torrid, frigid and temperate zones. Coating the body with an impervious material like paraffin, bronze, or varnish, soon causes alarming symptoms and results in death in a short time due to serious interference with this delicate heat regulating apparatus.

The general rules for maintaining the health and attractiveness of the skin are exactly the same as those which are necessary for the health of the body. These are proper, adequate, restful sleep and moderate, regular exercise, if possible in the open air; the judicious exposure to sunlight and a well-balanced, sensible diet, plus the liberal use of soap and water. Clothing should be suitable for the different seasons of the year: sudden changes in temperature may cause eruptions such as heat rashes and winter eczema. Cosmetics are best removed with an inexpensive cleansing cream, followed by washing the face with soap and water.

Dry skin has many different causes. Some people inherently have dry skin, usually due to a congenital reduction in the number and size of the oil glands and sweat glands. When this condition is severe it is known as ichthyosis, or fish skin. Over exposure of susceptible persons to sun, wind and cold may cause drying, scaling, chapping and fissuring of the skin. The frequent use of soap and water in winter and the omission of the application of cold cream, when it is indicated, is another cause. The unnecessary application of astringents and

so-called skin toning lotions are additional factors causing this annoying condition. Certain endocrine deficiencies, such as abnormal function of the thyroid gland, causes dryness of the skin. It cannot be stressed too strongly that people with a tendency toward dry skin should use soap and water sparingly during the winter months.

Moderate exposure of the body to direct sunlight is necessary for the maintenance of bodily health and vigor. That so many skin diseases are improved by the health giving rays of the sun eloquently attests to this fact. Overexposure of the body, especially the face and hands, to direct sunlight soon leads to loss of skin attractiveness. Changes in color and texture appear, and dryness and premature wrinkling soon follow. The heliophobe or the person of fair or sandy complexion, who "burns" at the slightest exposure to sunlight, is especially likely to experience skin changes. A comparison of the softness and texture of the protected skin covering the body with that of the face and the back of the hands will indicate the changes resulting from sun and air. Farmers, sailors and mountaineers—people who spend much of their time out of doors—are much more likely to develop serious skin changes such as keratoses and skin cancer.

Oily skin occurs frequently in certain physiologic crises of life such as puberty, adolescence and occasionally at the menopause. These states are occasioned by an imbalance of the glands of internal secretion such as the thyroid, pituitary and the sex glands. In those periods of life there is excessive stimulation of the oil glands especially of the face, chest and back. These glandular changes frequently lead to acne or other skin infections and irritations.

The use of cold cream during these periods and the infrequent use of soap and water aggravate this oily condition of the skin. The liberal use of fatty, greasy and fried foods in the diet is also a probable cause of oily skin.

Excessive sweating occurs most frequently in stout people and in those who have an increased number of overactive sweat glands. There are about 2,700 sweat glands to the square inch on the palms of the hands and the soles of the feet. The sweat glands on the rest of the body average about 900 to the square inch. Sweating may also be caused by heat, increased humidity and increased muscular activity. It may be stimulated by emotional factors, having their origin possibly in a derangement of the circulatory, endocrine, or nervous systems. Excessive perspiration may be alleviated by frequent bathing, proper fitting garments, reduction in weight, a bland diet (absence of highly seasoned foods and alcoholic beverages) and by increasing the general physical, mental and emotional tone of the body. Among the simple applications used for this condition are solutions containing tannic acid, or zinc sulphate, in dilute alcohol.

After thoroughly drying the skin a lotion should be applied with cotton and allowed to dry before beginning to dress. Most antiperspiration remedies and deodorants have aluminum chloride for their active ingredient and may be used successfully by direct application to the affected areas such as the arm pits, groins, palms of the hand and soles of the feet. Powdering these areas after the bath also aids in the dissipation of sweat. In severe cases of localized excessive sweating, the judicious application of x-ray treatments have proved beneficial.

The causes and treatment of excessive sweating are also true of body odor or malodorous, offensive perspiration. Body odor is caused chiefly by the fatty acids which are formed as a result of decomposition of the sweat. Water constitutes about 99 per cent of the sweat; the other 1 per cent consists of salts and fatty acids. When the watery part of the sweat evaporates, the residue becomes concentrated and causes body odor. It is obvious that frequent bathing with soap and water is the best method of removing this noxious layer. The frequent changing of clothing which comes in direct contact with the body and the dry cleaning of outer garments aid materially in the elimination of this condition. The liberal application of a good non-medicated dusting powder after bathing is an excellent practice. Fifteen minute foot baths of a weak solution of potassium permanganate help to deodorize excessive sweat.

The excessive use of perspiration remedies and deodorants may prove harmful. They occasionally cause inflammation of the skin, eventually leading to localized, painful boils, especially in the arm pits. It is for this reason that deodorants should not be used twenty-four hours before or after shaving the hair of the arm pits. The same interval of time should elapse between the application of chemical hair removers and perspiration remedies, or severe irritation of the skin may result. Body odor may also be treated by the proper application of roentgen rays to the affected areas.

MAKE LOVE A HABIT

YES, SHE'S DEEPLY IN LOVE, Miss S. tells me. If she could only be sure that it will last.

"I've seen so many tragedies," she explains, "when people thought they were in love and afterward found out that they weren't. I was brought up in a broken home from the age of 6, because my parents decided they didn't love each other any more, and got a divorce.

"In fact, I've been through the same thing myself. After I finished junior college and went to work in an office, I fell violently in love with a man who worked for the same company. For several months we were inseparable. We took it for granted that we were going to marry some day, although we had never talked of any definite date.

"Then suddenly my feelings changed. I still don't know what caused the change. It was just like turning off an electric light. I had loved him, and then I didn't love him. I still thought he was a pleasant fellow, but I was indifferent to him. He meant nothing to me.

"This experience has scared me. Suppose I had married him, and then had undergone the same change of feeling. Suppose I marry Jack, with whom I'm now just as desperately in love as I was with Ivan three years ago. Suppose that I have a similar change of heart a few years after marriage. It isn't anything I can control. It just happens. It would be a terrible tragedy.

"Isn't there some way that these things can be foreseen? Can't science offer any help in such an important matter as this? I can't think of letting Jack go, and I don't dare to marry. I'd do anything to make sure that my love will never change. What can I do?"

Miss S. can do the same thing that other people have done. Science has a solution of her problem, and it is not a new one. It is as old as human nature. All that she needs to do is to make love a habit.

Love may be a permanent pattern in the life of Miss S., or in your life—or it may be a mere episode. It depends on you to make it either one you desire. Psychologists agree that love is, among other things, a habit and must be cultivated like any other desirable habit.

The laws of psychology make your undertaking simple and easy, particularly in the case of such an agreeable habit as love. But you have to know what you are doing.

A habit is the line of least resistance—it is a road along which you are traveling, and the general tendency is to stay on the road, not to get out on one side where the going is rough and uncertain. Every one knows that bad habits have this tendency—they get a grip on you. Naturally, good habits do the same. As in all habits, the pattern first established tends to prevent the appearance of other conflicting patterns. If Miss S. really establishes the habit of loving Jack, the natural tendency will be for this to continue. This is still further helped by the fact that habit has a certain propulsive force within itself: it tends to keep you going toward your goal. It's "force of habit."

If you start in love, you have much in your favor.

Why, in that case, do so many people fall out of love? What happened to Miss S. when she suddenly lost interest in Ivan, when he became "just another nice man"? Why does any love affair die?

Most people fail to stay in love because there is nothing back of it; because the two people really had little in common and, as they came to recognize, a great deal to prevent com-

Most couples fail to stay in love because there is nothing back of their love. They have little in common, but much to prevent compatibility. They are in love with love: with themselves, but never with each other

By PAUL POPENOE

patibility. They never were in love with each other; they were merely in love with love, which really means in love with themselves—with their own feelings.

But so far as habit is concerned, any love affair is a new habit, and a new habit always presents certain difficulties. It necessarily functions imperfectly and is too prominent in your consciousness.

Think back to the time when you learned to swim, or to ride a bicycle. It took persistent effort, and you were always thinking about what you were going to do next. You had not yet formed the habit. The essence of an established habit is that it becomes automatic and independent of conscious guidance. When love reaches that point, it is likely to stay with you. Once you have learned how to swim, you don't forget. Once you have really learned to love your wife, you don't forget. If you have fallen out of love, it may be because you did not take pains to get the new habit well enough established.

When you learn to drive an automobile, your habits must be thoroughly established before you can throw out the clutch and put on the brake automatically, without stopping to think. Until you have established this habit, until it is ingrained, you may get into trouble—you may stall your engine, or you may step on the accelerator instead of the brake, or dash in front of the oncoming train instead of stopping at the signal. Many a new driver has been killed in this way because he encountered a dangerous situation before his habits were well enough established to meet it.

Many a new love has been killed in the same way.

How will you get the habit of love so thoroughly established that your marriage is

The accepted, formalized ceremonies of marriage will add more successfully to married life than a clandestine wedding, or a shamefaced "affair."

perfectly safe? Assuming that you have a background of similarity and that you are reasonably normal, you will proceed along the established principles of mental hygiene. The three laws of habit formation laid down long ago by William James are still a safe guide:

Get a good start.

This is particularly easy in love, because the conditions are so enjoyable. But everything possible should be done to reinforce the motivation—to get up acceleration. If you are trying to coast uphill on a sled, you won't get much of a start. If you are riding on a roller coaster, you'll get a flying start—such a start that you couldn't stop if you wanted to, until you reach the end of the trip.

Plan your marriage to take advantage of this psychology. Public announcement of a betrothal, and at least three to six months of a formal engagement period, have a great advantage for this purpose, as does a formal wedding. These ceremonies give you an impetus very different from that which you'll derive from a secret marriage, or a clandestine and shamefaced "affair." Every experienced person knows this, and the statistics of the American Institute of Family Relations confirm it. You are not getting a good start in marriage if you have your fingers crossed. That is one of the many fatal flaws in so-called trial marriage.

It is astonishing how many people deliberately give themselves a bad start instead of a good one. In some circles it is considered very "modern" for a bethrothed couple to tell each other and their friends that if either one should suffer a change of heart in the future, of course the marriage will be dissolved without regrets. What specious reasoning: Suppose you were learning to drive a car and you announced, "If the car heads into a ditch or a telephone pole, of course I won't try to prevent it." Your marriage, as well as your car, is subject to intelligent and experienced control. Some people never learn to guide an automobile; some people never learn to guide a marriage. Either they are defective in some way, or they don't really try. In either case there will be a tragedy which may affect others as well as the incompetent or indifferent driver. It is time to stop thinking that failure, in either case, is the mark of an emancipated and progressive personality.

Make a clean break with the past; pledge yourself without reservation to the future. Put into it everything you possess.

Repeat the desired actions until they become automatic.

After a good start, persistence is essential in the establishment of a new habit. But to be most valuable, this must be attentive repetition. Keep the repetition interesting, prevent it from becoming a dull, monotonous routine by continually finding new forms for it. This is highly important. The husband whose only kiss to his wife is a dutiful peck on the cheek as he starts for the office in the morning is depriving himself of a lot of satisfactions because he is a poor psychologist.

If you concentrate on making your marriage a success, on showing your love, on maintaining a harmonious relationship, your character will gradually become identified with successful marriage.

Some persons, who have given their "lovelives" no other nourishment than fiction and the movies, profess to abhor the idea that love should be merely a habit. This simply evidences a childish failure to understand what it is all about. In the same sense the inventive genius of an Edison is merely a habit, the musical art of a Paderewski is merely a habit. Each attained a high degree of success by following these same three laws of habit formation. Whether you become a great tennis player, a great poet, or a great lover, the psychological laws which govern you are the same.

Permit no exceptions to occur until the process is complete.

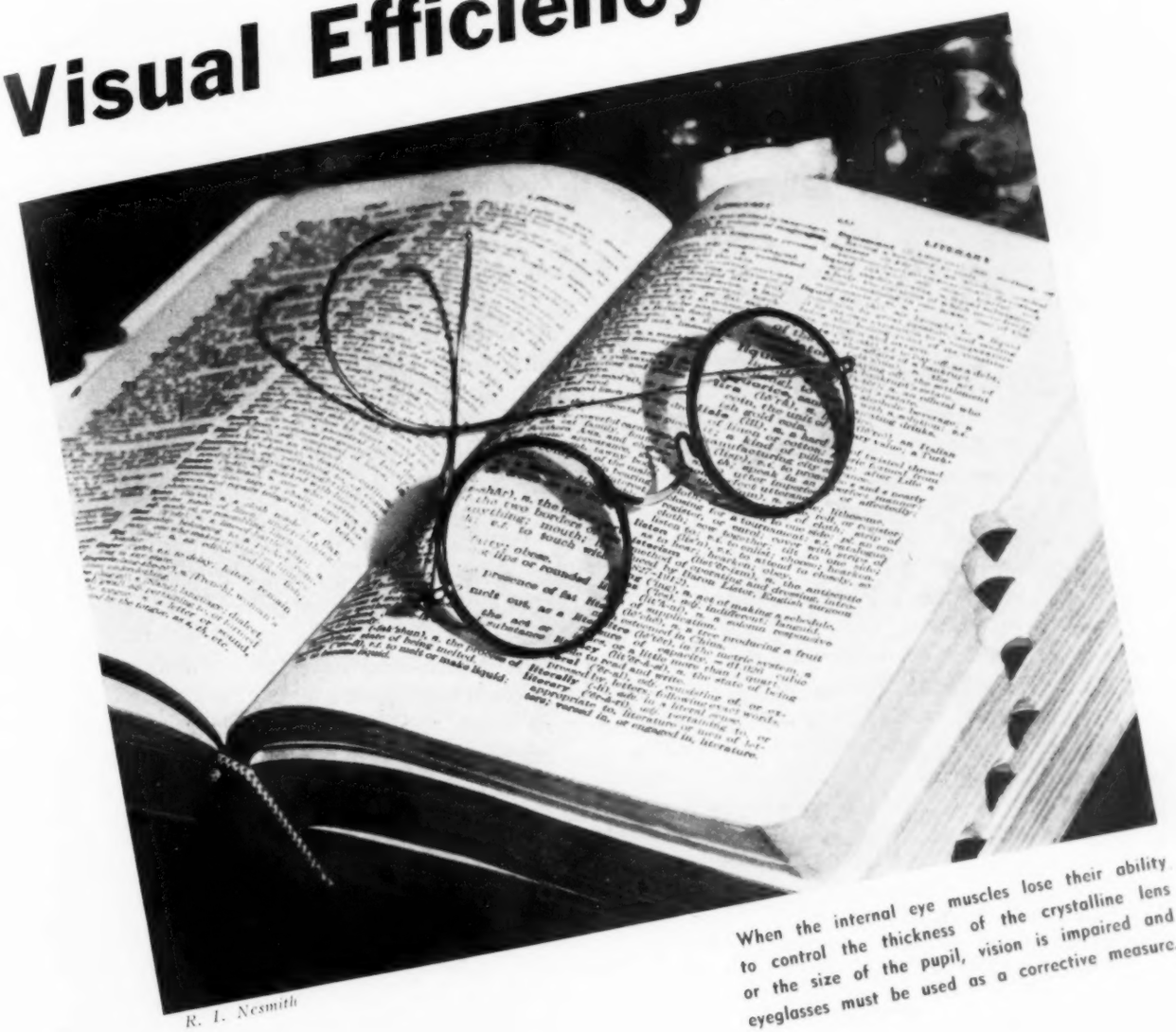
This is a factor to which William James attached particular importance. "Never suffer an exception to occur until the new habit is securely rooted in your life," he warned. "Each lapse is like letting fall a ball of string which one is carefully winding up; a single slip undoes more than a great many turns will wind again. It is necessary above all things never to lose a battle. Every gain on the wrong side undoes the effect of many conquests on the right side."

In daily practice, this third factor is perhaps more important than any other. Most marriages start off well—although without much reserve of knowledge, determination and purposefulness back of them. But before the honeymoon is over, husband and wife begin to have tantrums, to sulk or snarl, to "bawl each other out." They begin to make exceptions to the habit of love.

Particularly if an exception is associated with shock or strong *(Continued on page 304)*

Visual Efficiency

By HENRY A. IMUS



When the internal eye muscles lose their ability to control the thickness of the crystalline lens or the size of the pupil, vision is impaired and eyeglasses must be used as a corrective measure.

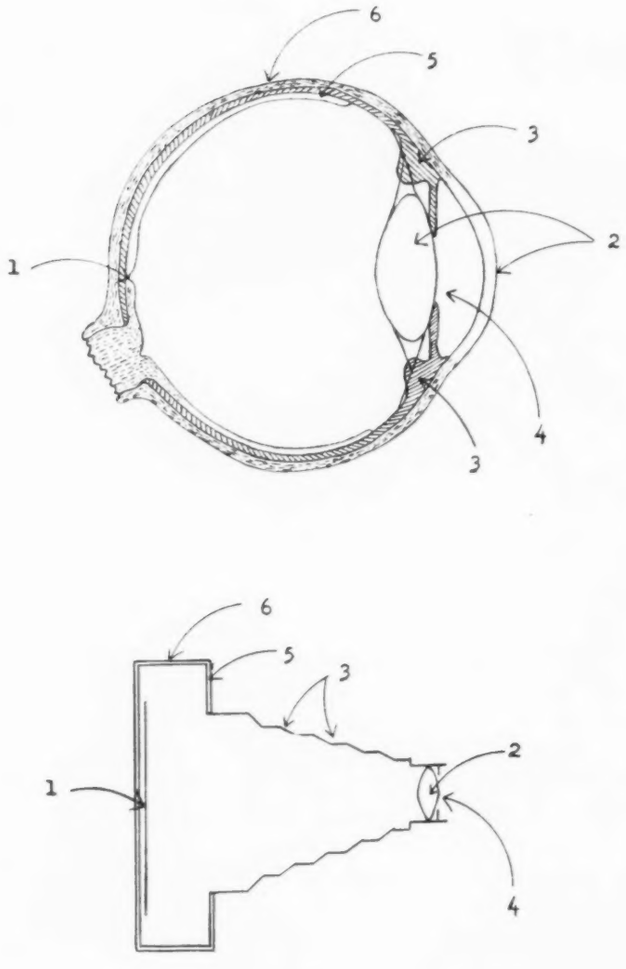
R. L. Nesmith

EIGHTY-FIVE PER CENT of all mental training is obtained through the eyes. The importance of vision, however, has been overlooked in many of the recent attempts to solve the problem of disability in reading. For example, certain schools have been particularly interested in the problem from the standpoint of nervous and emotional maladjustment. Another group has been concerned with the relative frequency of left-handedness, or mixed dominance of right or left sides in cases of disability in reading. The solution will not be reached until all of the important causal factors have been studied.

The visual apparatus may be divided into three parts. First, the refractive apparatus, contained in the eyeball, which produces pictures on the light-sensitive layer of the retina; second, the muscular apparatus which supports, directs and focuses the eyes on objects in space which attract the attention; third, the nervous apparatus, which receives the visual impressions of the external world and controls the actions of the eyes.

The refractive apparatus is more easily understood if one eye is compared to a photographic camera. The optical system, the cornea and the crystalline lens, forms a real

Diagram showing portions of the human eye which are similar to corresponding parts of a camera



(1) Sensitive lining, (2) lens system, (3) adjustable focusing device, (4) aperture or stop, (5) light-proof interior, (6) protective cover.

image on the retina or light-sensitive film at the back of the eye. The curvature of the crystalline lens is increased by the action of the ciliary muscle; thus images of objects at different distances can be sharply focused on the retina. This ability of the eye to focus is called accommodation.

The pupil is the opening of the optical system and controls the amount of light which enters the eye. Its size decreases with increased intensity of illumination and with the nearness of the object on which the eye is focused. There is a dark, pigmented layer covering the back surface of the retina which is similar to the blackened, light-proof lining of the camera and serves the same purposes; namely, to eliminate extraneous light and to reduce internal reflection.

Unlike the photographic film, however, the sensitivity of the retina differs in different parts. At the center, called the fovea, the parts sensitive to light are closely packed. Microscopic studies taken at different distances away from the center show that the light-sensitive elements become progressively farther apart. Furthermore, as a result of the anatomic arrangements, the sense of form diminishes rapidly from the center of the retina to the outer edges.

The muscular apparatus consists of two groups of muscles, those which operate inside the eyeball (internal) and those which function on the outside (external). The internal muscles control the thickness of the lens, hence, the light-bending power of the eye; and the size of the pupil, hence, the light-gathering power of the eye. These two reactions, accommodation and contraction of the pupil, occur simultaneously.

The external muscles, which control the movements of the eyes, are arranged in pairs, the action of one opposing the action of its mate. There are six muscles, two for lateral movements and four for vertical and rotating movements of the eyes. In the normal pair of eyes, the various muscles counterbalance each other. When the attention is directed to a far object, both eyes look straight ahead and the lines of gaze are parallel. Under the control of the nervous apparatus, the eyes, like twin cameras, can be pointed in various directions to objects at various distances.

By means of their nervous interconnections, the internal and external muscles of the eyes are intimately associated in the acts of accommodation (focusing for clear images) and convergence (pointing of the foveas of the two eyes toward an object so that one image may be perceived instead of two). When one wishes to look at a book held in the hand, the two eyes are so pointed that the images of the fixed word or letter fall on the centers of the two retinas, and the focusing apparatus makes these images clear and sharp. At the same time, the pupils contract, thus adjusting the amount of light entering the eyes to the intensity of the illumination and to the distance of the object. These associated acts are of fundamental importance in efficient reading.

The nervous apparatus is the most complex part of the visual system, but may be divided

into two parts. First, the sensory division receives the impressions of the external world. Second, the motor division transmits nervous impulses to the various muscles of the eyes. These two divisions are associated with each other by means of a multitude of interconnections in the brain.

The sensory division includes the layer of light-sensitive cells in the retina, their nervous connections through the optic (visual) nerve and optic pathways to the visual or receiving centers in the brain, while they are transformed into mental impressions. The visual area in the brain may be compared to a movie screen on which the pictures from twin cameras (the eyes) are projected and combined into a single mental impression.

Because the eyes are separated, slightly different views of the same object, especially at near distances, are obtained. Although the images formed on the two retinas may be the same size and shape, the internal patterns of these images are not identical. The brain, however, can interpret these image patterns into what is called depth perception (perspective). This perception of space is surprisingly accurate with a normal pair of eyes.

The motor division is composed solely of brain centers and motor nerves. When the centers are stimulated from the sensory division, or from other brain centers, nervous impulses are transmitted over the motor nerves to the eye muscles, causing them to contract or relax. Thus, the motor centers can be compared to the automatic telephone central through which various electro-mechanical devices are set into action according to a prearranged system of signals.

But there are two eyes and the two images must be fused. The prerequisites for the adequate fusion movements are three in number. First, sharply defined images must be focused on the retinas of the two eyes. Second, these images must be approximately the same size and shape. Third, the nervous pathways which lead to and from the brain, as well as in the latter, must be intact in order to permit the transmission of the various nervous excitations involved.

Probably the normal act of binocular (two eyed) vision is as follows: The attention of the person is directed to a given object, for example, a word in a book which he is reading. The two blurred images falling on different areas in the two eyes set up nervous excitations which cause the eyes to be moved until both images are centered on the foveas of the two eyes. At the same time, other excitations cause the internal muscles in each eye to adjust the focus of the lens and the size of the pupillary aperture so that the images become clear and distinct. If there is any lack of muscular coordination, the fusion movements are aroused which move the eyes in opposite directions until the various parts of the images fall more exactly on corresponding areas.

In general, a defect in any part of the visual apparatus will interfere to a greater or lesser extent with vision, depending on the location and magnitude of the defect and on the capacity of the nervous system to compensate for it. In the following section, various ocular defects are described, and their probable effect on reading is indicated.

There may be defects in the light-transmitting or light-sensitive parts of the eye, such as opacities (clouding), irregularities, inflammations, hemorrhages or degenerations. Such defects are either present at birth, or they may result from a severe general disease, such as tuberculosis, syphilis, diabetes and kidney affections, or from a disease localized in the eye, such as trachoma. An injury of the eye or head may also produce these abnormalities. As a rule, they are not entirely correctable, and the individual may be handicapped for life.

Refractive errors may be divided into myopia (near-sightedness), hyperopia (far-sightedness) and astigmatism (differences in curvature of the eyes so that the focus is not clear in all meridians at the same time). Astigmatism is often found in combination with either myopia or hyperopia.

When a considerable error of refraction exists, the images of the objects looked at are not brought to a sharp focus on the light sensitive retina. It is obvious that, if these images are blurred or distorted, the visual forms, such as letters or words, cannot be distinguished. A child will either fail to recognize them or will misinterpret them when attempting to read.

When these refractive errors are fully and accurately corrected by means of properly fitted glasses, clear vision is obtained. If the defects are incompletely and inaccurately corrected, then the blurred or distorted images on the retinas may cause nervous excitation of the focusing mechanism of the eyes (accommodation) in an attempt to make them clear and distinct. Persistent *(Continued on page 336)*

For more than a decade the United States Navy has been training divers to work on the floor of the ocean. Recruits for the strenuous six months courses at the Deep-Sea Diving School at Washington, D. C., are carefully picked from petty officers who volunteer. Divers must be between 20 and 30 years of age and must pass exceptionally stringent physical examinations

DIVING SCHOOL

By KENNETH M. SWEZEY

Photos by Kenneth M. Swezey

UNTIL A SCANT seventy years ago, deep-sea diving was a job for hardy adventurers—men who could laugh at the risk of painful disease, or even horrible death, in their driving passion for sunken treasure. Of the effects on the human body, of the terrific air and water pressures encountered deep under the ocean, medical science knew almost nothing.

When divers just hauled up from deep dives began writhing in agony from a disease descriptively called the "bends," superstitious seafarers blamed evil spirits who stood guard over the gold at the bottom of the sea. When others came up weakened or unconscious, or with broken eardrums, no one could give a reason. When men rocketed out of the water from the fast ascent of a "blow-up" to plunge down again to drown, or were pulled out mangled corpses, from a "squeeze," there were just groans and silent prayers among living divers that they might be spared a similar end.

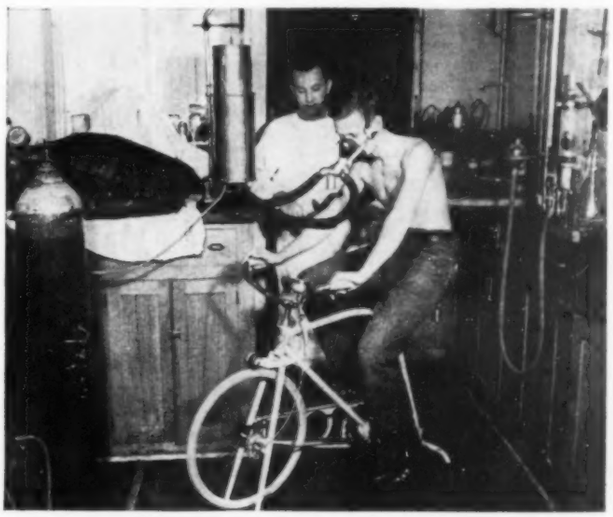
Today, after years of experimentation by medical and physical scientists, largely in collaboration with diving units of the British and United States navies, the causes of most of the hazards and maladies of deep-sea diving are known, and precautions against them have been worked out. As a result, diving has changed from daring adventure to a sober vocation, taught to young men in schools, much the same as mechanics or flying. Still one of the most dangerous jobs in the world, the great dangers now depend chiefly upon carelessness or accident, rather than on an ignorance of physics and physiology.

For the past thirteen years, divers for the United States Navy have been trained in the Deep-Sea Diving School at the Washington, D. C., Navy Yard. Recruits for the strenuous six-months course are hand picked from petty officers who volunteer. They must be between 20 and 30 and must pass a rigid physical examination.

Good heart, lungs, arteries and kidneys are absolutely necessary. As a diver's life often depends on staid, cool thinking in time of emergency, phlegmatic temperaments are preferred to excitable ones. Contrary to general opinion, medium-sized, wiry men often make better divers than big husky bruisers. Men as much as 12 per cent overweight are outlawed, on the grounds that fatty tissue absorbs more dangerous nitrogen than does muscle.

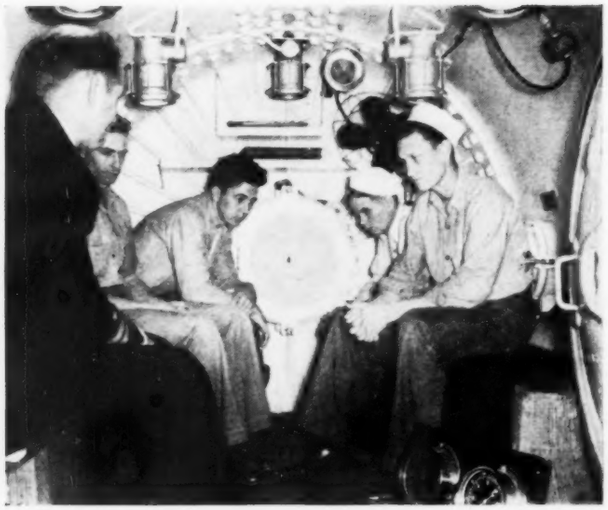
Smoking is permitted to diving students, but alcohol is forbidden. Here again science

Men who are thin, muscular, wiry make the best divers. Arthur Webb, a typical recruit, poses.



Applicants are given oxygen consumption tests as a part of the regular physical examination.

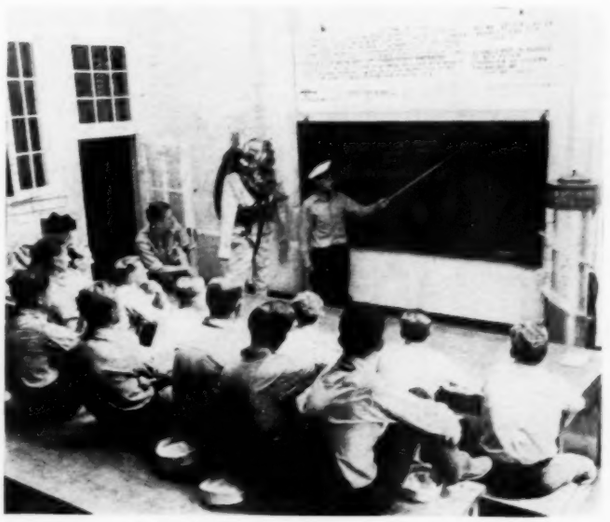
Blood pressure tests are one way to determine weak hearts—a basis for immediate exemption.



New men are further tested in a recompression chamber before they will be permitted to dive.

Putting on a helmet for the first time may be a weird sensation for men with claustrophobia.

Students must learn to perform mechanical jobs such as welding, pipefitting, chipping rivets.



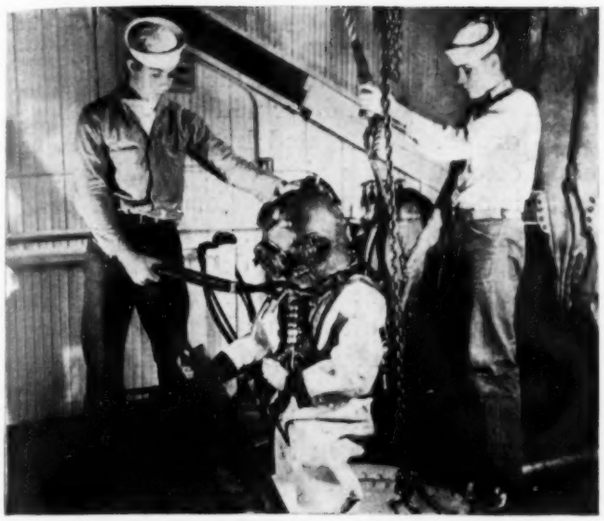
Divers must learn the theory of air pressures so they can apply it to the pumping mechanism.

throws out the ancient superstition. The old-time diver who fortified himself against the perils of the deep with a shot of whisky was misguided. Alcohol first speeds up the heart rate, and then slows it down. Both of these changes handicap a man working under high pressure. Alcohol also promotes nitrogen absorption, and has been proved responsible for many serious cases of bends.

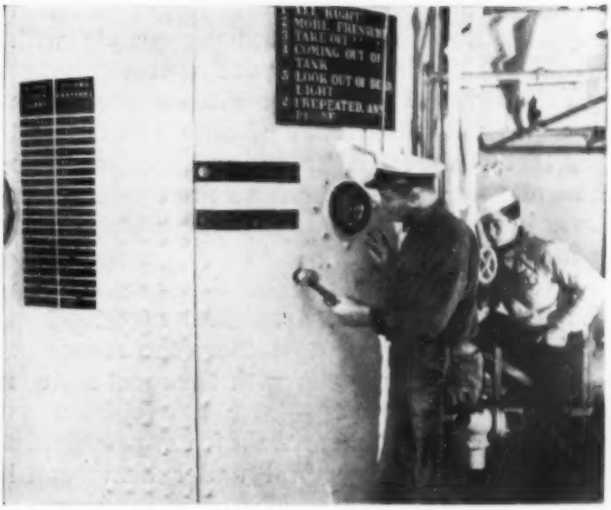
Before a man is allowed to dive, he is put into a recompression chamber, where the air pressure is slowly raised to 50 pounds to the square inch. If, as the pressure rises, the student's ears begin to pain, it means that the passages to the inside of his ear drums are clogged, and the pressure on both sides cannot be equalized. Such a man must not dive, as continued pressure might finally rupture the drums. Men who get dizzy or nauseated in this test are also questionable diving material.

Passing the pressure test, the diver-to-be is dressed in his diving gear and dropped into the diving tank. This is a big cylinder of steel, with an air lock at the top through which the diver enters and emerges. At first he learns to walk about, regulate his buoyancy and perform simple mechanical jobs in shallow water at a pressure only a few pounds greater than that at the surface. As fast as he proves he is ready, however, the water pressure in the tank is gradually increased by compressed air. Before the student graduates, he must be able to live and work at a pressure equivalent to that 300 feet under the sea.

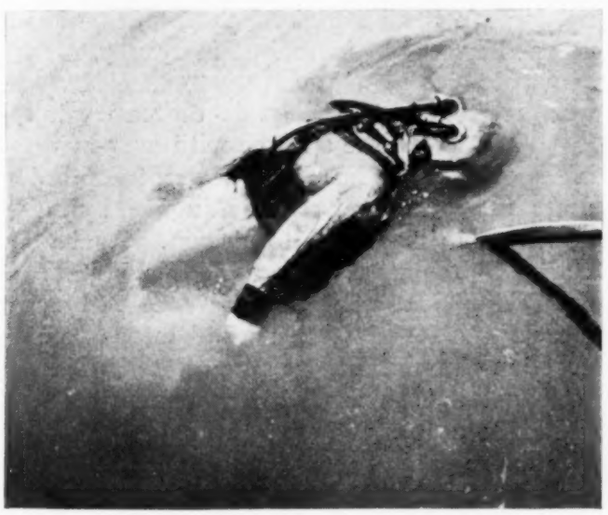
It is this enormous pressure—the pressure of the water surrounding him, and the pressure



Although the diving tank is only 12 feet deep, pressures found at 300 feet are approximated.



Instructors watch their students at work; give directions by telephone and by tapping on tank.



Too much air makes the diver streak toward the surface, causing the serious, dreaded "bends."

When divers have been "blown" to the surface, only a recompression chamber will save them.

of the air he must breathe to keep from being crushed by the water pressure—that hovers constantly over the deep-sea diver, altering and straining every bodily function, and waiting only for a moment's negligence to give him the last mighty squeeze of death. Against the real danger of this pressure, such imaginary dangers as malevolent spirits, devil-fish, sharks and human villains fade into insignificance.

To understand better the magnitude of this pressure, several comparisons may help. In ordinary existence, we live and work in an atmosphere that pours into our lungs and permeates our bodies at a pressure of about 14.7 pounds to the square inch. If we fly, or climb, three miles above sea level, the pressure drops about 6 pounds to the square inch. Even this little change, however, is enough to cause

By skilfully adjusting air pressures within a recompression chamber, "bends" may be avoided.

violent breathing in an effort to get sufficient oxygen into the lungs, and for people with weak hearts it is definitely dangerous.

Yet a diver experiences a similar increase in pressure with a descent of only 14 feet! At 300 feet down he is breathing air pumped to him at nearly 200 pounds to the square inch. Over his entire body, he is being pressed with a force of 200 tons!

It was to the effects of this pressure on the human system that medical investigators had to turn in trying to fathom the causes of diving ills. They began with the most serious of them, the "bends"—later known also as "caisson disease" because of its prevalence among men who worked under compressed air in tunnelling operations.

The cause for bends was this: Under normal pressure, the nitrogen which forms about four fifths of the air we breathe is harmlessly exhaled. Under the high pressures of diving, however, some of the nitrogen is forced to dissolve in the blood, thus to be carried throughout the body. The higher the pressure, the faster nitrogen is absorbed; the longer the diver is subjected, the greater the amount absorbed.

As long as the pressure continues, no harm is done: the nitrogen molecules remain in fine suspension. If the diver comes up suddenly, however, thus removing the confining pressure, the molecules, in their rush to escape, clump together into bubbles. The bubbles often cluster around the joints, causing intense pain; and along the spinal column, veins and heart, causing convulsions, paralysis, or even death.

The first suggestion for the prevention of bends was made by a Frenchman, M. Paul Bert, in 1878. Bert's remedy was to have a diver come up slowly but steadily, allowing time for the nitrogen to work its way gradually out of the system. In experiments conducted since, in the British and United States navies, it was found better to bring a man up in sharp definite stages. In emergencies, when a diver must be hauled out quickly, he is now put immediately into a recompression chamber, where the pressure is first built up and then reduced until the nitrogen is eliminated.

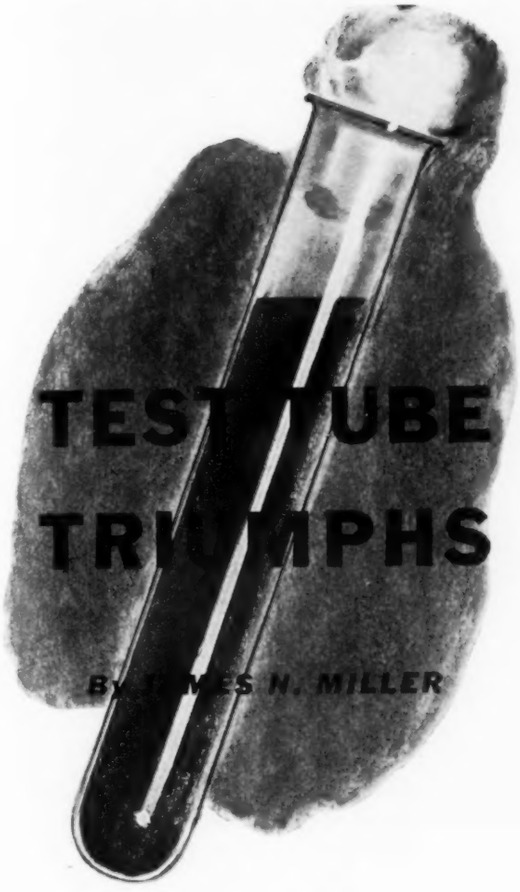
Besides the possibility of causing bends, the high pressure under which a diver must work produces a number of other functional abnormalities which have been the subject of medical study. In depths over 90 feet, a diver can't whisper or whistle, and his speech becomes so distorted it is hardly recognizable. Deeper than 130 feet, air is fed into his lungs so fast that it has the effect on him of breathing pure oxygen. Sometimes, under the influence of the increased oxygen, a diver will sing and stagger as if drunk. Stimulated by the oxygen, the body combustion is also more rapid and the diver is often enabled to perform superhuman feats of muscular strength.

Usually, at very great depths, the diver's mind and actions slow down—he becomes "light-headed," often fumbling about and claiming over his telephone to be doing things which he is not. The reason for this condition is not definitely known, but it is now believed that nitrogen is not strictly the inert gas that it was once supposed, but that at high pressures it has a narcotic effect on the body.

From the standpoint of pure physics, the diver must always face two great hazards—the "blow-up" and the "squeeze." In the blow-up, too much air floods his suit, and he floats upward from the increased buoyancy. If he cannot let out air fast enough to check his rise within about six feet, he is thereafter helpless, shooting to the surface with ever-increasing speed. If he has been at great depth, his dress may finally burst, letting him plunge down again headfirst to drown. Again, he may kill himself by ramming the bottom of the diving boat at bullet-like speed. Spared these fates, he must be rushed into a recompression chamber before he gets the bends.

To get a "squeeze," a diver merely drops suddenly a few fathoms through the water. The water pressure, now greatly exceeding the air pressure inside his suit, acts like a giant hydraulic press, thrusting his body into his helmet, crushing bones, flesh and muscles alike into a pulp. Always an accident, there can be no medical remedy for the squeeze.

The latest development in the fight against bends and the light-headedness produced by nitrogen at high pressures, is the feeding of divers with a synthetic air made up of a mixture of oxygen and helium, instead of the oxygen and nitrogen of the ordinary air. Helium is not absorbed into the body as readily as nitrogen, and it forms much smaller bubbles which the body releases more easily. With its use, a diver can dive deeper, stay down longer and come up faster. His mind also remains clearer. At present the Navy has only one complete helium suit, which was used successfully during the salvage of the submarine *Squalus*. In this dress a diver not long ago made a test dive to a depth of 500 feet!



TEST TUBE TRIUMPHS

BY JAMES N. MILLER

ONE OF THE MOST life-risking jobs in the world is held by Dr. Edward Francis of the National Institute of Health, with headquarters in Washington. He is officially in charge of a "tick village," owned, operated and built by himself. It consists of about a dozen and a half tiny boxes. Each of them is an "apartment house" containing an exclusive organism. Bearing the tongue-twisting name of "ornithodoros turicata," this tick was collected from Blue Bug Cave in Texas. These ticks have not been fed for five years and yet each one is still infected with the virulent spirochetes of relapsing fever which they communicate to man by biting.

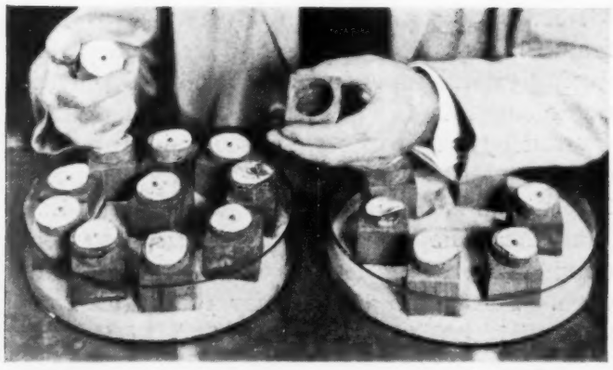
There are countless other health soldiers, all connected with the Federal Public Health Service, who daily cheat death while delving into the cause and cure of mysterious ailments like parrot fever, tularemia, typhus and rabbit fevers. No risks are greater than those faced by these microbe hunters who willingly expose themselves to dangerous infections in the hope of unearthing knowledge that may be of use to society.

Recently, Francis was reported recovering from the ravages of relapsing fever, contracted during experiments in his laboratory. As the name suggests, the ailment is a recurring one. Caused by a spirochete, it results in annoying chills and sudden changes in body temperature. This is the fifth mysterious malady that Francis has had. In 1913 he was stricken with dengue fever, an ailment something like influenza. Passed on to man by mosquitoes, no preventive has yet been found for it. Dengue is also known as "bonebreak fever," for when you have it you feel as if your bones indeed would break. Usually, the patient is severely ill for only three or four days. While the mortality is low, the ailment is extremely discomforting.

In 1913 Francis came down with tularemia or rabbit fever, a deadly disease which takes its name from Tulare County, California. The ailment morbidly affects the liver and spleen of human beings. In 1928 Francis contracted undulant or Malta fever. With symptoms similar to those of malaria, it is a lingering and sometimes fatal ailment. There have been cases in which the patient has run a fever every day for more than two years and some victims have recurrent attacks for as many as five years. Then, in 1930, during the nationwide outbreak of parrot fever, Francis came down with the dread malady.

Francis' latest illness is the one hundred and fifty-first "recovery" from infections contracted in regular line of duty in the Public Health Service personnel. There have been 17 fatalities. Two health heroes have had three serious ailments apiece. Dr. George McCoy contracted two—typhoid and dengue—in a single year, 1907, and came down with tularemia in 1910. Dr. Charles Armstrong, another leading microbe hunter, contracted dengue in 1923, parrot fever in 1930 and chorio-meningitis in 1935. When he fell ill he was studying the ailment, then new and unidentified, in his laboratory. The virus was finally isolated from a case of sleeping sickness that occurred in St. Louis.

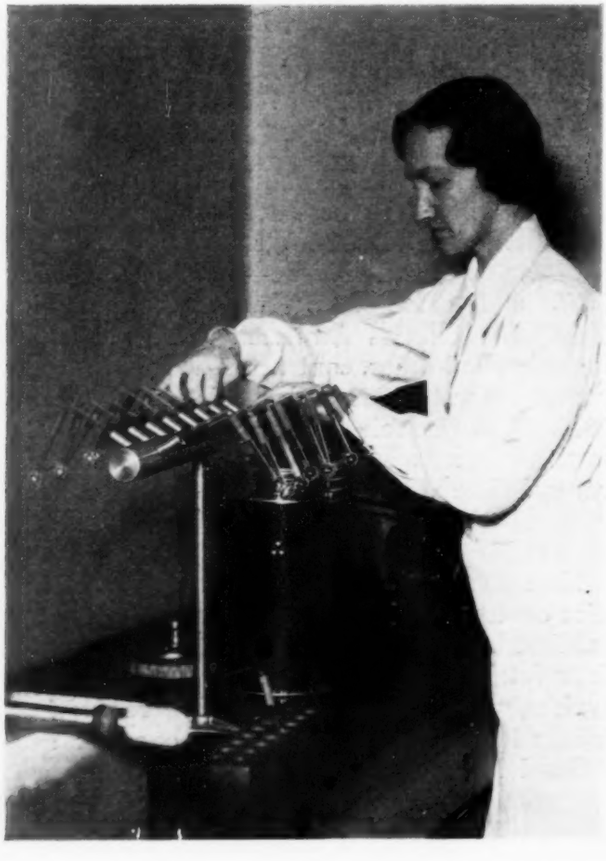
Most disastrous of all the mysterious maladies contracted in active service by the health soldiers is Rocky Mountain spotted fever, with four fatalities and twelve recoveries. Next is typhus, with two deaths and five recoveries. While tularemia has caused but one death to federal laboratory workers, there have been 23 serious cases. Eleven health officers came down with parrot fever, with one death. Two



Above: In this section of the "tick village," each diminutive box contains ticks purposely inoculated with the germs of relapsing fever.

Right: This "microbe hunter" of the National Institute of Public Health constantly cheats death while testing blood serums for disease.

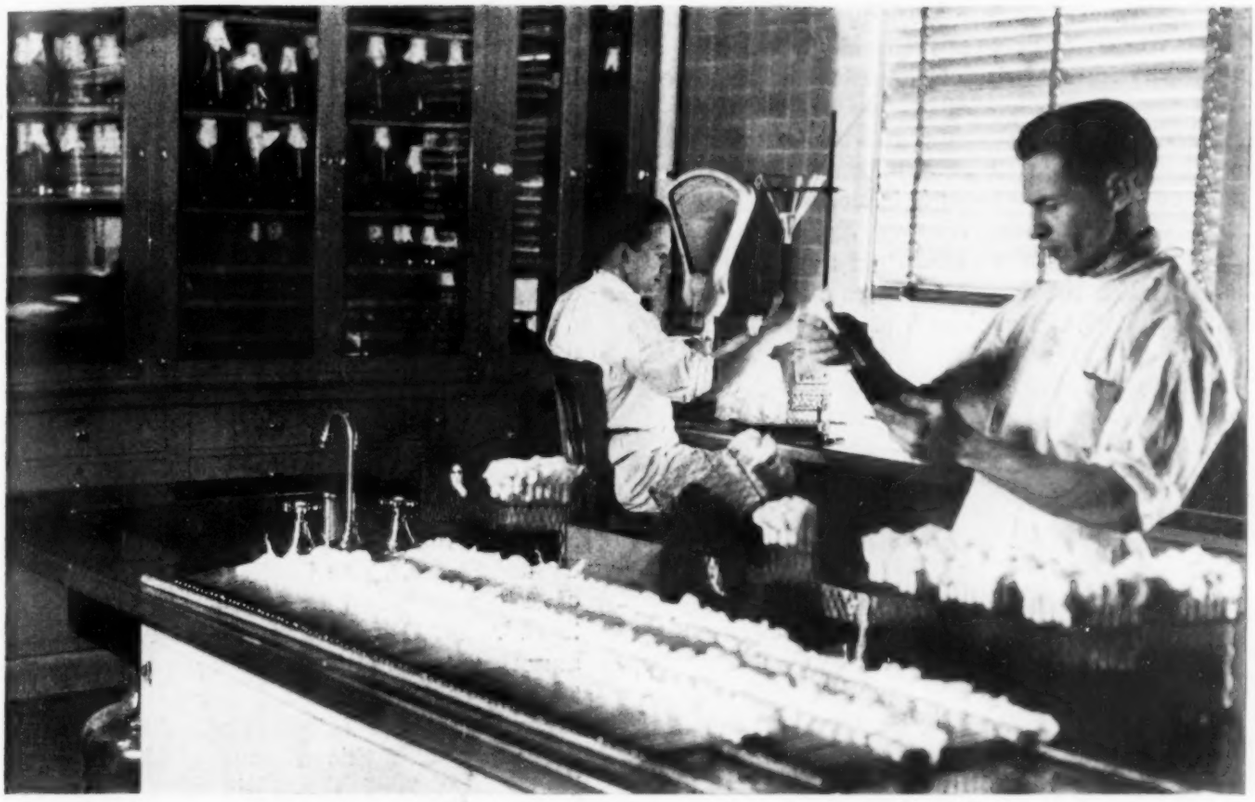
Below: An electric hair dryer often assumes a unique function: drying a meningitis culture.



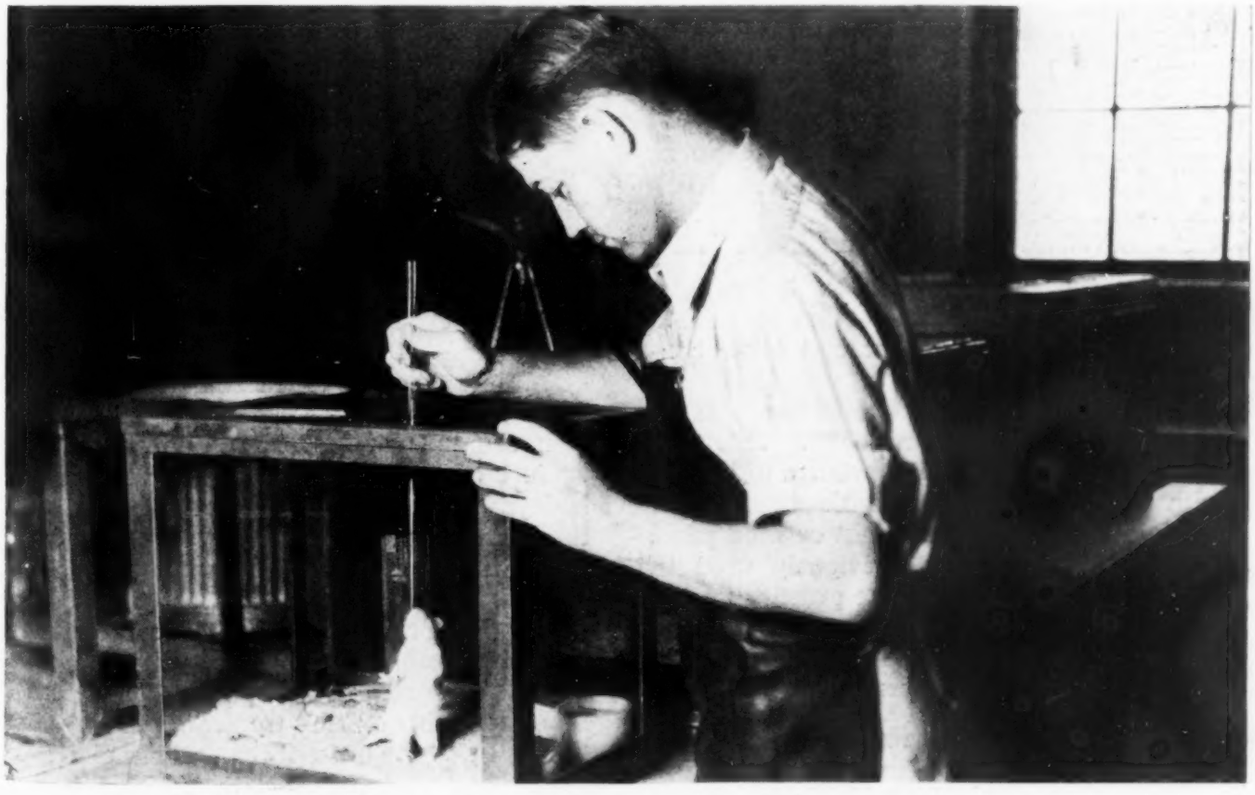
other scientists, Dr. G. C. Lake and Alice Evans, a bacteriologist, are listed as "still much disabled" from the war against Malta fever.

For days at a time the test tube heroes work with bacterias of the world's most dangerous typhus-like diseases, of which spotted fever is one. These strains come from all over the world and include maladies that are caused by such insects as ticks, lice, fleas and kindred parasites.

Malta or undulant fever has attacked five members of the Public Health research staff. The fifth officer of the service to become infected was W. T. Harrison, who became inoculated with the germ while he examined the microbes in the blood of a victim before him, Edward Francis. The ailment is not necessarily fatal and not one of its victims in the Service has died. However, it carries with it a high temperature, pain and swelling in the joints and neuritis. It sometimes holds its victims intermittently for as long as five years. To master the disease, officials say it is necessary to study the germs as they multiply in an infected person's blood and determine in that way a method of effective eradication of



One of America's most dangerous libraries is this federal laboratory where serums of dangerous typhus-like diseases are kept. No risk is too great for the health heroes.



A technical assistant is shown operating the apparatus which removes infected fleas from white rats used in connection with scientific studies of endemic typhus fever.

the germ. It is while working in laboratories that the scientists are attacked, making it virtually impossible for them to continue their experiments.

Undulant fever was discovered in the Isle of Malta, hence its original name. It was a source of constant trouble to British soldiers on the island until the discovery was made that the germs were transmitted in goat's milk. Evans, the bacteriologist, was infected when splashed with a broken vial of the germs she was studying in the laboratory.

Vacuum cleaning fleas sounds like a queer job. Yet it is part of the regular duties of Oren O. Hefner, technical attendant to remove the fleas from white rats. Here, certainly is one of the most novel procedures in the vast laboratories of the National Institute of Health. The scientists are preparing a vaccine for typhus, a vaccine made from fleas purposely infected with the disease. Millions of fleas are bred for the purpose and in order to be properly infected they must live on rats that already have typhus. So that the fleas may be handled without danger to the research worker, the rats are kept in sanitary cages. After the fleas have been infected, the rats are vacuum cleaned and the fleas shot into the cage via a glass container; they are chloroformed and then used for making the vaccine.

Another dangerous job is held by Senior Bacteriologist I. A. Bengston of the Institute staff, who works in a laboratory within a laboratory. This is an especially devised sterile room. For the first time in history Bengston has succeeded in growing the organisms of Rocky Mountain and typhus fevers in the laboratory. The interior laboratory is kept sterile by thorough disinfection before and after each research session. The idea is to keep out germ carrying dirt and other contaminating influences.

Meningitis study is conducted on a large scale at the Institute laboratories. This type of research is of special importance to human health today because meningitis assumed an alarmingly high virulence eight or nine years ago, causing the serum previously used in treating the malady to become practically useless. Small wonder, then, that the National Institute of Health today is concentrating on developing an improved serum that will serve as a cure.

Back in 1932 typhus fever was conquered by a soldier of science. The victor was R. E. Dyer of the Public Health Service. He perfected a serum, made from the blood of guinea pigs innoculated with the pulverized bodies of fleas carrying the plague. The serum is now hailed as a positive preventive against the ailment. For months Dyer and his associates worked with the germ laden bugs. To prove the efficacy of their serum they allowed the fleas to remain on their arms and legs overnight and even over week-ends. They ran the risk of death to carry out their work and establish their results.

For centuries typhus has been a dreaded plague. During the Middle Ages it ravaged Europe, and until 1854 it was confused with typhoid because of the similarity in symptoms.

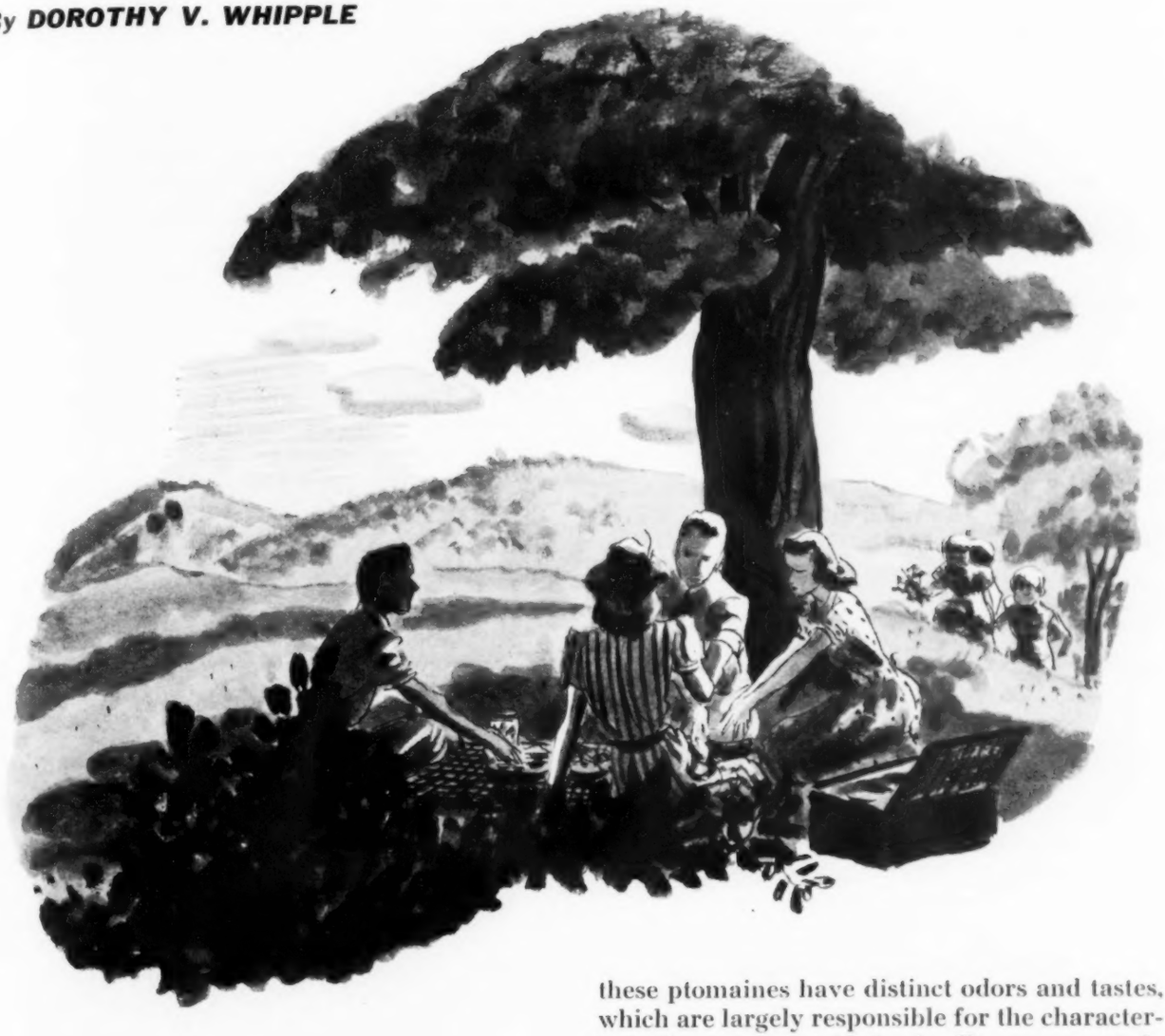
Since the epidemic of 1930, the Federal health scientists have been paying special attention to parrot fever, or psittacosis, which has been found in practically all parts of the United States. The baffling germ causing the disease was found some years ago, according to W. W. Maclachlan of Pittsburgh. He announced he had found the germ to be paratyphoid bacillus of which little is known and for which there is no cure. Almost simultaneously with this discovery, Lloyd Arnold, bacteriologist of the University of Illinois, found what he called the psittacosis germ in the body of a parrot in the home of a patient who was ill with the disease in Westmont, Ill.

The death rate among persons who have contracted parrot fever is high, although the malady is not lingering. Those patients who do recover can resume normal life in three to four weeks. The first symptoms are similar to those of typhoid fever, but after a short time they become more like those of pneumonia. Federal authorities say the greatest danger rests in intimate association with birds suffering from the fever. The germ is thought to remain around the beak and mouth of the bird.

So there they are, the federal health soldiers. Their heroism recalls the role of other brave men, some of whom were martyrs in the fight against other mysterious diseases. It recalls Hideyo Noguchi, born in Japan, but citizen of the world. He died at Accra, on the Gold Coast of Africa, the victim of a mosquito whose bite carried yellow fever. One is reminded, too, of Major Walter Reed and his associates who made it possible to stamp out yellow fever in Cuba. Also outstanding was the late Sir David Bruce, who braved the tropical heat of Africa to prove that the tsetse fly caused sleeping sickness. And still the modern men of science continue to fight on against tremendous odds, even in the shadow of death.

Ptomaine Poisoning Doesn't Exist

By **DOROTHY V. WHIPPLE**



"PTOMAINE POISONING doesn't exist? But I know it exists," you say. "I never was sicker in all my life than after I ate that spoiled chicken salad at the lodge picnic."

No doubt you were ill, but you didn't have ptomaine poisoning: Ptomaines do not make you sick.

Ptomaine is a word for substances which form in decomposing foods. There are many different compounds which come under the general term ptomaines, but they all have in common the property of being made by bacteria out of decomposing protein. Some of these ptomaines have distinct odors and tastes, which are largely responsible for the characteristic flavor of putrid food. To many people the taste and smell of ptomaines is distasteful, so that food containing them is seldom more than nibbled at. However—unbelievable as it may seem to many people—the ptomaines in such food, even when the food is eaten in large quantities, produce no ill effects in the human body. In fact some people consider food so flavored a great delicacy—they eat food containing ptomaines with relish, enjoyment and subsequent comfort.

"Ripe" game is meat which has been allowed to "hang" long enough for considerable decomposition to take place. Poultry which has

become "high" by a moderate amount of aging is especially enjoyed by certain epicures. Fish, too, in some localities is allowed to "ripen" by being buried in the ground for several weeks. Many cheeses are not considered fit to eat until they have aged long enough to permit extensive decomposition.

Those who eat these foods—the "ripe" game, the "high" poultry, the aged cheese—consider them desirable and they do not make them ill.

But food can make people ill. What makes some foods harmful, if it is not the ptomaines? Most people are familiar with the fact that acute illness sometimes occurs after eating food that is not wholesome—the most usual symptoms of such an illness are nausea, vomiting, abdominal pain and diarrhea, often accompanied by headache, chill, fever, weakness and prostration. Occasionally these symptoms are overshadowed, if indeed they occur at all, by the development of severe and sometimes fatal paralyses. Illnesses, with some or all of these symptoms, more accurately called food poisoning than ptomaine poisoning, can and do occur after eating food harmful because of one of the following reasons:

(1) The food eaten is itself naturally poisonous.

(2) Bacteria have made poisonous substances in once wholesome food.

(3) Chemical poisons have been accidentally introduced into the food.

(4) Bacteria, themselves harmful to human beings, have been allowed to grow in the food.

Diseases other than food poisoning are sometimes attributed to food. At times food may contain the germs which produce typhoid fever or dysentery or cholera. Diphtheria and septic sore throat are transmitted in milk occasionally as is also tuberculosis and Malta fever. Deficiencies of certain vitamins in food produce specific deficiency diseases, but here only the type of disease known as food poisoning, but often incorrectly called ptomaine poisoning, will be considered. Food poisoning can best be defined as an acute attack of illness due to some injurious property of food.

There is a story told of an Italian family who had for years been accustomed to gathering mushrooms on the hillsides near their home in Southern Italy. They emigrated to this country and settled on a farm near a large city. They grew vegetables and sold them at a stall in one of the city's open air markets. One day they brought also a large basket of delicious looking fresh mushrooms which they had found on a hillside and which they assumed were the same variety as those they had eaten frequently in Italy. Almost all the mushrooms were sold, those remaining at the end of the day were cooked and eaten by the family. The mother, father and four older children all became violently ill; the three younger children who had not eaten any mushrooms were not afflicted. The father and two older daughters recovered. The mother and two brothers died from the poisoning. In the city that day four families ate mushrooms bought from the Italian farmer. Altogether there were nine cases of poisoning and four deaths, besides those in the farmer's family.

There are other poisons from the plant world that are mistaken, though rarely, for similar-appearing edible substances. Some are

poisonous at all times, like the water hemlock or the fruit of the Kentucky coffee tree. Others are poisonous only at certain times of year. A certain bean growing in Italy produces symptoms of poisoning in those who eat, or only merely smell, the bean during the spring.

Poisons exist in animal foods as well as in plants. Certain tropical fish are poisonous always, other fish like the sturgeon and the pike produce a substance poisonous to man during the spawning season. In contrast to these species of fish which are poisonous only during the spawning season, it is interesting to note that other species such as shad and smelts are most desired as food during the spawning season.

Mussels are also poisonous at times. Mussels may suffer from a disease more apt to be present under certain food and spawning conditions than at other times of the year. This disease makes the bodies of the mussel poisonous to man. A story is told of two families who spent their vacations together at a resort beach. At low tide one July morning seven of these people gathered a quantity of mussels, cooked them, and ate them about 11 a. m. About two hours after the meal the father and the 5 year old girl, both of whom had eaten a large quantity of the mussels, began to feel ill and show symptoms of numbness, dizziness and paralyses. The 5 year old daughter died at 3 p. m. and her father at 6:30 p. m. the same evening. All the others who ate the mussels had some degree of illness that afternoon or night but none of the others died.

Food poisoning, due to naturally occurring poisons such as these, occurs, but the number of cases of such poisoning in the United States is small.

Instead of the poisons being made in the food by some physiologic property of the plant or animal from which it comes, the poison may be made by bacteria growing in the food. Only Clostridium botulinum can make a poison of this sort and, since it is a most severe type of poisoning, it is fortunate that these bacteria are rare. The poisoning is known as botulism.

These bacteria do no harm, but when they are allowed to grow in food for a period of time they elaborate a poison which is harmful to human beings. This poison has little if any effect upon the stomach or intestinal tract. Nausea and vomiting seldom occur. The poison affects the central nervous system and causes headache, dizziness, fatigue and usually disturbances of vision which frequently progress to blindness. Inability to swallow, or to talk, are occasional symptoms and, in those cases that terminate fatally, paralysis of respiration is usually the immediate cause of death.

Botulism is a serious disease. In some epidemics as high as 100 per cent of those attacked died; seldom is the fatality less than 50 per cent.

The bacteria which produce botulism grow in soil and are frequently present in fresh foods. They do no harm unless they have an opportunity to grow in a place where air is excluded. Under such conditions they not only multiply but produce a poisonous material as a by-product. Conditions most favorable for growth are improperly canned food. Canned food which is not thor- *(Continued on page 314)*

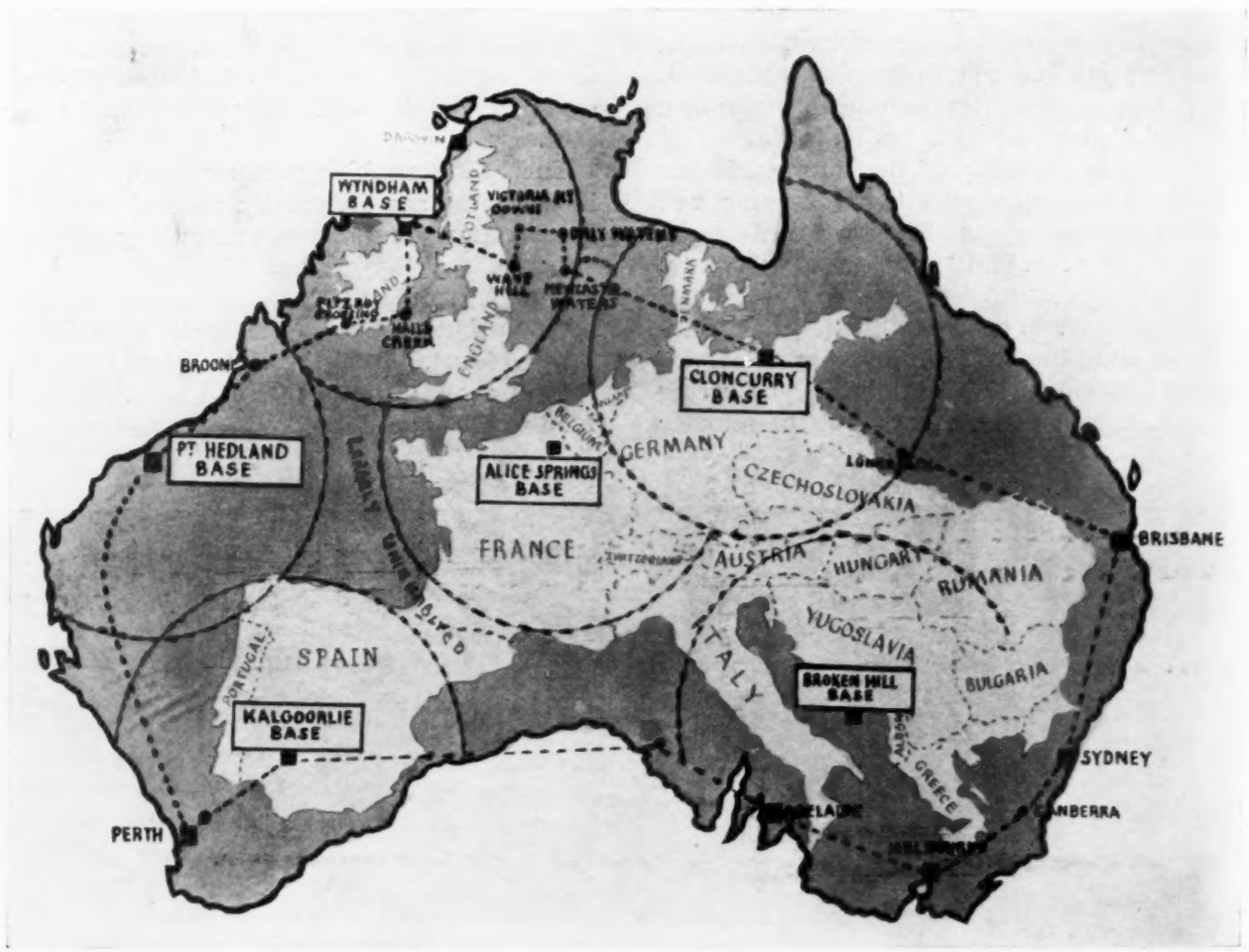
Flying Doctors

AUSTRALIA'S most precious gift to her people "out-back" is the flying doctor. The inspiration for this wonderful institution came from the Very Reverend John Flynn, known today throughout Australia as "Flynn of the Inland," whom his church has lately honored with its highest office, the Moderator-Generalship of Australia.

In 1912 Flynn founded the Australian Inland Mission to minister to the isolated people of the interior. He soon perceived the urgent need for medical and nursing services in a country chiefly devoted to cattle raising and mining, in which many serious accidents occurred. Illness involved arduous and expensive journeys, sometimes occupying weeks, with death frequently winning the race against time.

But distance was the problem. In over 1,380,000 square miles of the continent, there was no settlement large enough to support a resident doctor. Flynn saw that the solution of the problem depended on the intelligent use of aviation and wireless. He dreamed of doctors visiting patients by air, and advising them by radio.

The first step was to devise a radio through which untutored people might communicate

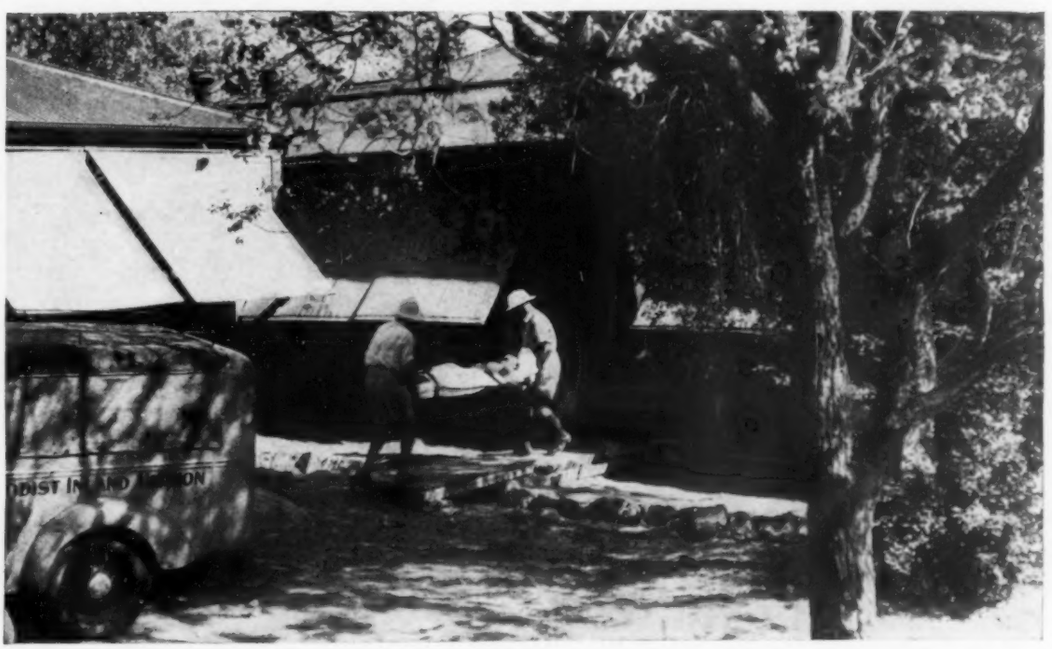


This map shows the vast areas covered by the flying doctors of the Australian Medical Services. These circles, drawn at a radius of 400 miles from each base, cover an area considerably larger than Europe.

their needs. A young radio man produced a radio which would transmit messages by means of a small, high-tension generator, worked by bicycle pedals. Inward messages are received in voice and outward messages go in Morse code, tapped out on an ingenious automatic keyboard transmitter. On a short radius, up to 200 miles, two-way telephony is practicable.

Flynn interested city philanthropists in the project and by 1927 had enough money to establish the first

Pedal radio sets have added security and friendship to ranch life "out back." Although neighbors are often more than 200 miles apart, and medical aid may be more than 600 miles away, radios have provided the means for friendly conversation, or for summoning medical assistance. For the shorter distances —within 200 miles—two-way telephony is usually practicable.



Center: Church missions located in the Inland regions cooperate fully with the Australian Medical Services. Bottom: A patient is transferred from an ambulance after arrival by plane, Wyndham, Northwestern Australia. The doctor at the Wyndham hospital base must cover an area greater than that of the entire British Isles.

base at Cloncurry, in Western Queensland, with a doctor, an aerial ambulance and a radio base. Today there are similar bases at Wyndham and Port Hedland, in North Western Australia; at Alice Springs, in Central Australia; at Kalgoorlie, in the heart of the West Australian gold fields, and at Broken Hill, in Western New South Wales.

Flynn's dream has come true. Six flying doctors serve over one million square miles of country, each covering a radius of 400 miles. Nearly 200 settlers have pedal radios, and the number is increasing constantly. The population served is 23,000 whites and 13,000 aborigines. The doctors in 1939 made 247 flights, covering 87,000 flying miles. The service costs $75,000 a year, of which the Commonwealth and State Governments give half, patient's fees and public conscriptions providing the remainder.

In addition to visiting patients and removing them in the aerial ambulances to a hospital base when necessary, the doctors treat minor illnesses by radio, referring inquirers to the numbered contents of first aid sets. The doctor at Wyndham talks by radio each week to young mothers from 200 to 350 miles from civilization about the care of their babies. Six mothers can participate in the discussions while others listen in.

Following Flynn's example, the Bush Church Aid Society, an Episcopalian organization, has established another flying doctor at Ceduna, at the head of the Great Australian Bight. The Commonwealth Government maintains another at Katherine, in the Northern Territory. Many ranch owners provide landing grounds for the doctors.

The terror of illness in the lonely "outback" has been minimized by this mantle of safety.

The Very Reverend John Flynn, at right, known as "Flynn of the Inland," was a missionary nearly forty years ago, ministering to patients, who often had to spend weeks in travel by horse or camel to come to him. He dreamed of radio communication and aerial ambulances at strategic points when both fields were still young.

This ski camp, one of Canada's most famous resorts, is atop Mount Assiniboine, Alberta.

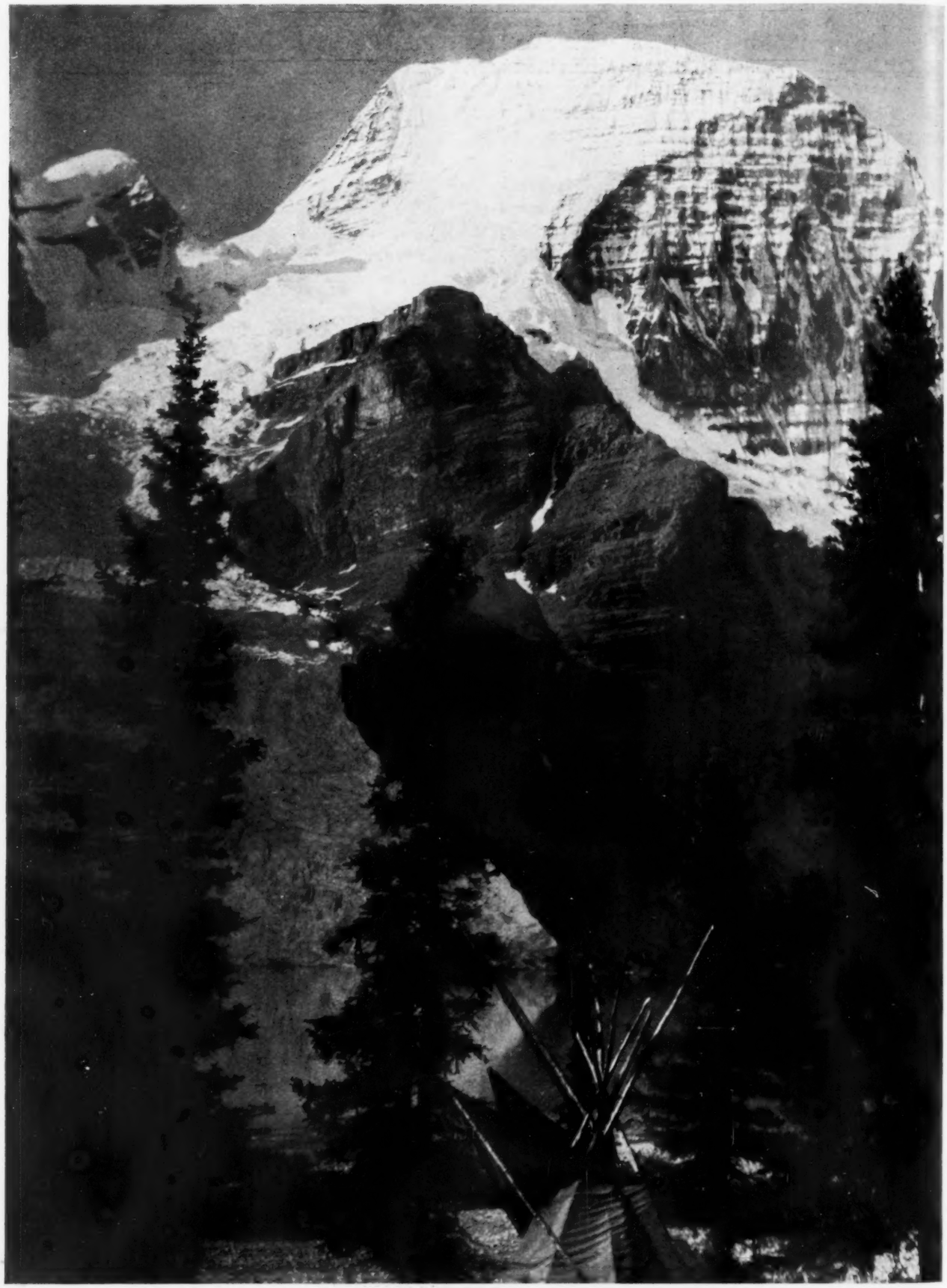
A Vacation in CANADA

By SCHUYLER B. TERRY

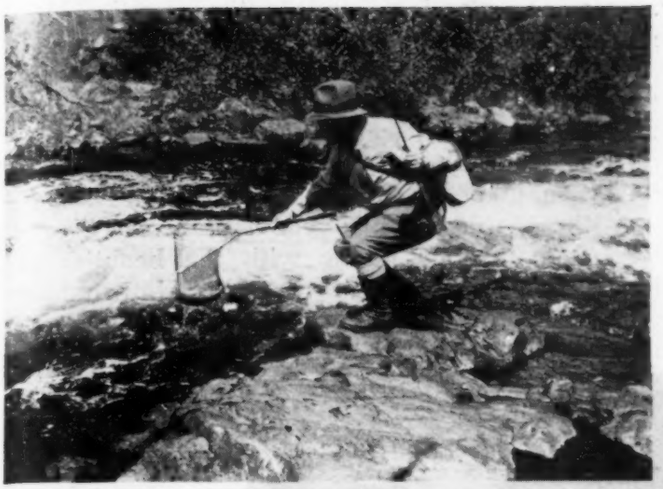
TRAVEL FOR RECREATION and travel for health are now an accepted part of our national life. This generation understands, as never one before it, the value of getting outdoors in fresh air and sunshine and, if possible, seeking a change of environment. At a time when it took the labor of four men on the farm to produce livelihood for five, nature met this problem. Since then we have changed largely from agricultural pursuits, and now well over one-half of our population live in vast hives, where to many the concrete sidewalk is the natural environment and a grass plot or a tree is a museum piece.

Periodically the archeologist uncovers ancient cities equipped with drainage, sewerage disposal and water supply where no relic shows dispossession by violence of the population that fought a losing battle with disease consequent to the herding together of a large population in a limited area.

With the spread of knowledge of medicine and hygiene and the progress of transportation by air, train, auto and bus almost every family can spend at least a week outdoors in healthy occupation that will be a change from that of the other fifty-one weeks of the year. A week's vacation with pay and a week's wages saved



Mount Robson's stately grandeur rises almost 13,000 feet above sea level in British Columbia.



The range of selection open to the Canadian visitor lies across a continent 3,000 miles in width. Many excellent roads, like the one below to Lake Oxford, link alike both mountain camp and industrial center. The trout fisherman, shown at left, lands his catch from a stream in the Laurentian Mountains in Quebec.

from the other fifty-one make up the travel budget of the average American family. What this totals as a national enterprise is indicated by the fact that travel is said to be our third largest industry.

This is startling to contemplate in the abstract. Concretely, however, it is many millions of persons going happily about the country on business, or in search of health, or recreation. Tourists bring Florida more money than her citrus crop. In Michigan only the automobile business exceeds the tourist business; in California, only the oil industry ranks higher.

Reasonably enough, then, the tourist business is a bringer of wealth. To the tourist, travel should be a source of joy, of health and of information. The tourist will go where these are to be had and conversely he will avoid those places that cannot supply them.

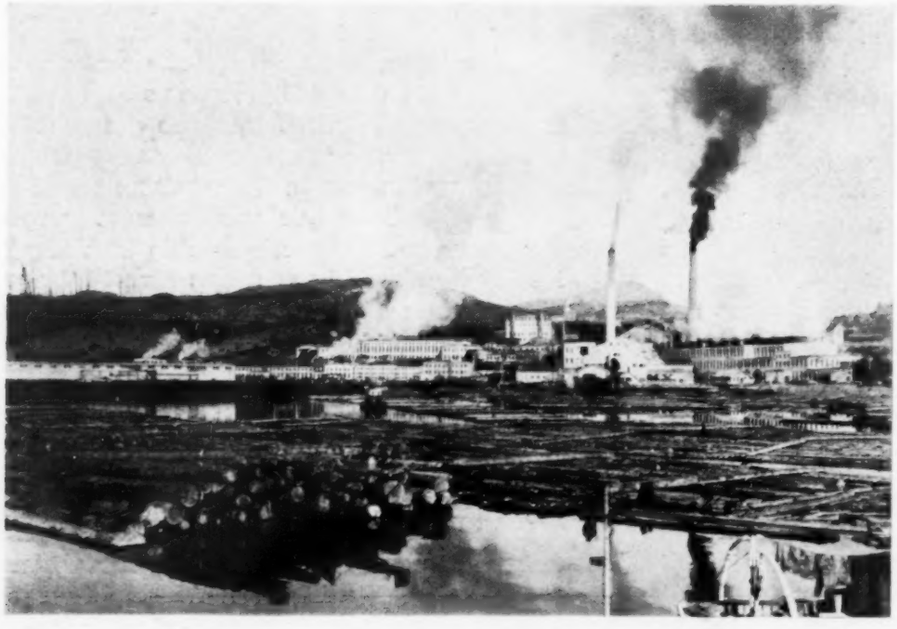
That travel is a joy, builds health, adds to information and experience, makes travel in itself nonetheless valuable to those who profit by the business it brings. In 1939 some 18 million people went to Canada from the United States and stayed an average of five and one-half days. These Americans spent $262,000,000; their days were passed outdoors in sunlight and fresh air, in mountain climbing, fishing, hunting, or milder activities.

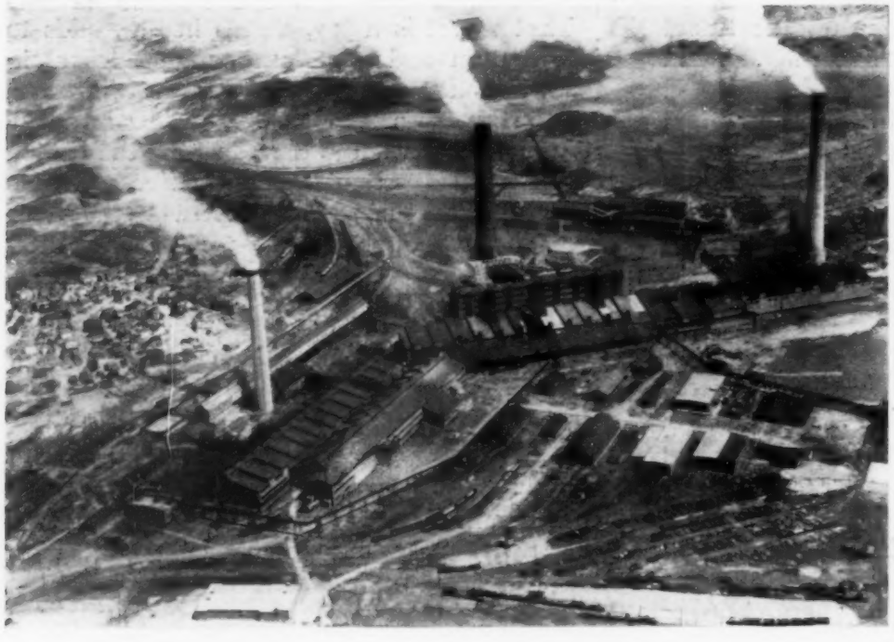
The range of selection open to the visitor to Canada is across a continent 3,000 miles in width. The altitude ranges from sea level to Mount Robson in the Rockies, 12,972 feet high. The pursuits available to these tourists vary from palatial hotels equipped with tennis courts and golf courses to the birch bark canoe, the fishing schooner, or the trail, with cabin or tent, and a bunk, a cot or a blanket to sleep on. Forest, tundra or plain, stream,

lake or salt water lie open to the adventurous. Moreover, all four seasons of the year have their attractions. Winter sports of skiing, snowshoeing, tobogganing, skating and curling replace hunting, fishing, boating, golf, tennis and bathing as the glorious outdoors, in its course through space, swings away from or toward the sun.

It is estimated that visitors to Canada in 1939 consumed 18,000,000 pounds of meat, 4,000,000 dozen eggs and 4,000,000 pounds of butter. From these facts the imagination soars to the gasoline and oil and to the countless other items necessary to the maintenance, amusement and transportation of so many people.

Appreciation and understanding of the value of our tourist trade with Canada has dawned but slowly on our national consciousness. Canadians themselves realized it fully, and at the opening of this year made every effort to acquaint our public with the beauties and pleasures of travel in Canada. Unfortunately, others of opposite purpose more fully alive than we to the close commercial relations





Canada is endowed with a unique position in some things: One is a large radium ore deposit only 26 miles from the Arctic Circle. By reducing the price of radium by almost two thirds, this huge tract has aided the scientist's fight against cancer — the third most probable cause of death in the United States — immeasurably. Left: Giant paper mills engaged in the production of a commodity which has become a major factor in universal sanitary measures.

between Canada and the United States, and the vital necessity to each of the interchange of tourist traffic between them, did their utmost to disrupt those relations and destroy that traffic. Rumors were spread as false as they were malicious of conditions in Canada and of difficulties that United States citizens might encounter with our own immigration authorities in returning to this country from Canada. It has taken time and patience to present the true facts, but the loss to the tourist industry has been almost $100,000,000.

Why should there be this vicious attack on our happy and healthful visiting with our time-honored neighbor? Ordinarily, our picture of travel would stop with the recounting of the places to see and the crowds who went there. But it is interesting to analyze the picture further and see what Canadians did with those American dollars, and the resultant benefits the spending of those American dollars conferred. This may give the answer for what was in effect a sabotage of one of our major industries. Briefly, the American dollars spent

Annapolis Basin, Digby, Nova Scotia.

by tourists were used to pay us for interest and dividends on the $4,000,000,000 Americans have invested in Canada; to pay us for the $150,000,000 that represent the excess of Canadian purchases from us above our purchases from Canada, and for transportation and insurance. For 1940 this excess of purchases from us over sales to us is estimated at $280,000,000. The $262,000,000 spent by Americans in Canada for travel and pleasure became, with the spending, one of the principal fonts of American dollars that made it possible for Canada to be our best customer.

More business has been done between Canada and the United States since 1927 than between any other two countries in the world. Canada and the United States are in many respects economically complementary to each other and even with the enormous volume of trade now existing, there is opportunity for much expansion of trade between them.

Now that Canada is at war and must increase her purchases from us, the dollars spent by American citizens in Canada for vacation, health, travel and a good time take on a tremendous and fearful significance as we suddenly become aware that these dollars spent so light-heartedly in the cheerful pursuit of our vacations are now providing the necessities of war to Canada.

But, our neutrality laws do not permit us to give credit or lend money to Canada. True, Canada is our best customer who has always paid promptly. Canadians also are related to us by blood, ideals and institutions. So close are the ties between us that there is not a blow Canada could suffer that would not be felt throughout our social and economic structure.

We have no political ties with Canada, though we have in common the priceless heritage of Common Law, and those ways and inhibitions of thought that have come down to use from a common ancestry through the one hundred and sixty years of existence separate from each other. We have every economic tie with Canada that a separate political existence in a continent that is a unit permits. Our boundary is man-made and, save for the usual customs stations and an occasional sign post, is invisible to all but the most skilled cartographer. The administration of this very dividing boundary has been a monument to the unity of spirit of the United States and Canada. The International Boundary Commission, now in existence for 30 years and composed of three Americans and three Canadians, has never had a disagreement and has nearly always been unanimous in its decisions. Mountains separate people. Lakes and streams unite them. All the mountains on our boundary run the wrong way to separate the United States and Canada. The folding of the hills has made valleys avenues of communication across the boundary.

Across this boundary flows the greatest trade the world has ever seen between two nations over a continuous period of time. Canada bought $497,000,000 worth of materials from the United States in 1939—one-sixth of our export business. Purchases of cotton from us amounted to the production of 3,625 farms of the average production per acre, and of the average size farm in our cotton belt; corn purchases equalled the production of 1,380 average size farms in Iowa at the average production per acre. "Canada is our only remaining fruit export market of importance," writes an authority on agricultural economics in California. Try to imagine the extent of the orchards, the people employed there and the supplies bought by owners and employees represented by the consumption of $1,164,000 of grape fruit, $1,387,000 of lemons, and $6,245,000 of oranges bought by Canada in 1939, or for that matter of farms from which came $4,000,000 of soybeans and $4,000,000 of fresh vegetables. Fifty-one million dollars of petroleum and petroleum products, $55,000,000 of coal can be interpreted in terms of wells and mines and men. The geographic distribution stretches from Pennsylvania to California.

There are some 3,000 items listed in Canadian trade statistics of which there is hardly one that is not supplied to some extent by the United States. Canadian purchases draw from nearly every district of our country, and to lose those sales to Canada would be a calamity that would affect all of us.

Canada produces a few things in quantity greater than they, or we either, could use. While Canada in 1939 gave us two-thirds of her import business, her sales to the rest of the world were nearly two and three-quarters times the amount sold us. It is by the transfer of these balances, as well as the money spent by American tourists, that Canada has made up the moneys due us above Canada's sales to us.

In some things, Canada has a unique position. Eighty to ninety per cent of the world production of nickel comes from Canada. Incidentally, Canada has assured us that our requirements of nickel *(Continued on page 325)*

American Red Cross

Medical technologists take x-ray pictures in the Army Medical center, Walter Reed Hospital, Washington, D. C. Each "reservist" available for duty is given a certificate like the one at the left.

Mustering Medical Aides

THE ENORMOUS job of mustering medical technologists for immediate mobilization in a national emergency is one of the tasks assigned to the American Red Cross.

Technologists needed by both the Army and Navy include: Chemical laboratory technicians, dental hygienists, dental mechanics, dietitians, laboratory technicians, meat and dairy hygienists, occupational therapy aides, orthopedic mechanics, pharmacy technicians, physical therapy technicians, statistical clerks and x-ray technicians.

For chemical laboratory technicians, dental mechanics, meat and dairy hygienists, and orthopedic mechanics, only men are wanted by the Army. The Navy will accept only men.

Applicants must be physically qualified and must be between 21 and 45 years of age for the Army, and between 18 and 35 for the Navy. Women must be unmarried.

Enrollees are classified according to professions and segregated into Corps areas to facilitate the withdrawal of applicants from civil life according to military districts.

Left: Dietitians also have an important place in the nation's defense. As one of the fields open to women applicants, the Red Cross is constantly enrolling people with this inestimably valuable training.

Below: A pharmacy technician goes into action, showing the type of work waiting technologists enrolled on Red Cross lists.

Above: Blood counts would be made by a skilled technician during an emergency.

Right: Registered pharmacists who are enrolled will compound prescriptions.

Below, right: Many special skills will be needed to produce artificial limbs.

Below: Another army field open to women is that of dental hygienist. The teeth of all army men are carefully examined.

IN SEARCH OF A Normal

IF EVERY man and woman knew more about the periods in life when the stresses and strains were greater, and could learn to manage and adapt to these periods, there would be less nervous and mental illness. The problem of caring for the mentally ill is yearly becoming a greater communal and national burden. Some idea of the magnitude of the problem may be obtained by a few figures: More than half of the hospital beds of this country are filled with persons mentally ill. There are over five hundred thousand insane patients in the United States, and an additional one hundred and fifty thousand hospital beds are occupied by persons mentally defective or epileptic. Each year about one hundred thousand new mentally ill persons are admitted to our hospitals.

The cost of caring for the mentally ill in the United States is tremendous. For the entire country this amounts to 250 million dollars yearly. The expectancy of mental disease in the population is large: One out of every twenty persons goes to a mental hospital sooner or later in life.

The history of the care of the mentally ill is interesting. The ancients thought the insane were possessed of the demon, and took all measures to remove that harmful influence. During that period, and even as late as the Eighteenth century, such patients were treated by blood letting, purging, starvation, surprise baths, whippings, etc.

At the close of the Eighteenth century, physicians found that mental disease was curable and there was a surge of humanitarian interest in the care of the mentally ill. Dr. Philip Pinel, a Frenchman, was the first to realize that kindness and consideration might awaken some response and light of reason in the darkened minds of the insane. To Dr. Pinel goes the credit of removing the chains from those wretched sufferers and of opening the door to desperately needed reforms. In England, Dr. Daniel Hack Tuke, a Quaker, was quick to take up the cause. He was a man of great piety, and finding himself unable to forget the distressing scenes of the insane asylums, determined to develop a better way to care for these unfortunates whom he recognized not as demons but as sick men and women. In the United States, Dr. Benjamin Rush, physician, psychiatrist, scholar and patriot, a signer of the Declaration of Independence, took up the cause of the humanitarian treatment of the insane and established the earliest reforms in the State of Pennsylvania.

In rapid succession, the entire medical profession and the public came to realize the importance of suitable treatment of the maladjusted and the mentally ill, and today every state has hospital facilities for their care.

There were other great physicians who helped our understanding of mental illness. Among these were Dr. Cesare Lombroso, an Italian, the founder of scientific criminology; Dr. Emil Kraepelin, a German, a careful clinician who codified the terminology of psychiatry; and the late Dr. Sigmund Freud of Vienna, who emphasized the importance of maladjusted mental stresses in the patient's earlier life as a causative factor of mental disturbance or illness in the adult.

A problem of such great importance to the national health and welfare requires careful study, especially since much mental illness can

Life

be avoided by a little knowledge of the simple methods of prevention.

There are certain periods in life when every person is subjected in greater degree to the stress of "growing up."

They may be roughly grouped as (1) the time of childhood, (2) the time of adolescence, (3) the time of marriage and the experiences of raising a family, (4) the time of the physiological change of life, the menopause in women and men, and (5) the time of old age. These are the five important periods of life. Each of these experiences is full of possibilities for better health, if properly managed, or for physical or mental illness, if improperly managed.

The best insurance for the mental health of the child is a combination of physical health and a happy home. The training period of childhood is important because it is during this early age that the patterns of satisfaction and achievement are formed. Successful child training works toward making the child healthy, happy and self dependent. This requires for every child a combination of the knowledge that he is loved by his parents and feels secure with them, together with the satisfaction that comes from opportunities for successful achievement.

The child must be made to feel safe, secure and welcome in his home; he must be treated as a human being with certain rights and definite responsibilities. It must be obvious that parental authority, to be respected, must be respectable. Parental indifference or neglect is soon reflected in the rebellious attitude of the child. He clamors for his fair share of attention by crying, shouting, having temper tantrums, or by wetting or soiling his clothing.

Over-ambitious parents who expect too much of their children are often an unsuspected cause of feelings of insecurity. Children are known to develop night terrors because they worry about not being able to meet their parents' expectations successfully. A child loaded with excessive responsibilities can never feel secure. Often such overladen children run away from home to escape this unfair burden.

We must not forget that children are extremely impressionable and that family financial worries, family illnesses, arguments and superstitions are best aired, if necessary, when children are not about. Simple misunderstandings between husband and wife may easily be magnified by the child, making him unhappy and causing illness such as night terrors, vomiting, diarrhea or bed wetting. Parents should remember that their child's world centers about them, and anything that causes disharmony or insecurity in the home makes the child's universe shake and crumble. Little Jimmy needs his world moderately safe and stable to feel safe and secure himself.

The most important formula for helping the child in his early years, the golden mean that every successful parent must attain, is that fine balance between giving the child love and a sense of security, and at the same time sufficient freedom for action and experimentation to become self reliant. A child can be made just as unhappy by too much security as by too little. Overprotection can stunt personality growth. The ability to overcome obstacles grows by exercise and experience. The child who has been given the opportunity for enough experience develops ingenuity to meet life's real problems when they come along.

In adolescence, the stress of life is increased. The child of yesterday, living in the security of a happy home, begins to be more often exposed to the problems of living in the larger and more complex society of the community. More flexibility is required of the adolescent to make a happy adjustment to the larger and more varied groups. Youth is insecure and therefore is afraid to deviate in the least from the crowd. In this period, young Willie clamors for side pleated long trousers, or the "slickem hair tonic," because he is afraid to be in any way different from his friends. The adolescent girl, likewise, feels that she must stain her toe nails, or smoke the cigarette smoked by "Those who know," because she

By S. BERNARD WORTIS

also is afraid of incurring the criticism of her group. It needs much good common sense in the home to deal with the impulsiveness caused by the insecurity of this period.

Increased sex curiosity is a natural phenomenon during adolescence and should be met as and when it arises by an honest willingness of the parent to explain the biologic, and psychologic factors of sex. Tell the adolescent the true facts and prevent misunderstanding and misery. During adolescence the normal young person presses for progressive emancipation from the home. Give him increasing opportunities for freedom. If you restrict young people too rigidly, they become headstrong and foolishly brave in their liberating gestures, or they may develop a pathologic sense of being pressed by their parents. Such unhealthy mental states may be the forerunners of real illness.

Marriage and the experiences of raising a family are important periods of growth. This time of life is full of opportunities for personal psychologic growth. The young married couple, each partner the product of a highly individualized background of home and community training, suddenly find themselves living together in very close association. Differences of opinion, differences of habit, differences of desires and tastes are accentuated when people first live under the same roof. The newly married couple, to be successful, must learn quickly that affection, tolerance, understanding and sympathy with the partner are essential for harmony. The young husband must learn not to resent his wife's giving the newly arrived baby most of her attention.

People who cannot face the stress of marriage often develop nervous and mental illnesses. Some overindulge in alcohol or drugs. Some cannot face the issue squarely and develop neurotic symptoms like insomnia, loss of appetite, loss of weight, crying spells, imaginary worries, multiple physical complaints for which no structural disturbance can be found, and a few are even pushed into the shadowland of insanity. The physician can recognize the early symptoms of mental stress and prevent a more severe illness.

Every parent, physician and minister knows the adjustment problems of marriage and many cities now have community facilities where the prospective couple, the newlyweds, or the family with children, can come for premarital or marital advice. These marriage counsel clinics are staffed by physicians who have been trained in the technics of medicine and psychiatry. The family can come to the clinic with its troubles and receive scientific, unbiased psychiatric direction.

The time of the physiologic change in life—the menopause which occurs in women and men—is a most trying period of adjustment. The sweats, hot flashes, headaches and dizziness of this period are real and often disabling. On the psychologic side, women and men at this time must be reassured that their sexual lives are not over.

In the stage of old age, the body organs, including the brain, function less actively. The old person fatigues easily, his memory is less accurate, he may be impatient and stereotyped in habit, he dislikes changes because he is afraid of them, and his entire activity becomes more and more closely circumscribed to the barest essentials. When grandpa reaches this stage, help him to find comfort in his limited life. Don't remind him that he doesn't remember things, or that he's getting old because he does not like the movies.

Today every physician trained in medicine and psychiatry studies the whole personality. He considers his patient like a ledger, having a credit side with assets, and a debit side with liabilities. He can treat maladjusted people and help them return to the normal ways of living. In recent years physicians have come to recognize the increasing importance of psychologic factors in causing illness.

Many kinds of psychiatric help are available for the normal person. For example, many boards of education have psychiatric clinics to investigate the causes of maladjustment and

(Continued on page 329)

Adolescent April

April is in their veins; discomforting,
Unpeaceful April; and they dare not sing
For fear of weeping. White and tense they walk,
Guarding their dancing feet lest they should mock
The body into stumbling. Afraid of speech
That leaps and falters in its valiant reach
For starry keys to loose the brimming heart
Of wordless wonder that their eyes impart,
Till beauty grows within too great to quell,
And some young violence breaks the April spell.

Virginia Brasier

NATIONAL FITNESS DEMANDS ENERGY

Industry calls for more men — the training of youths to meet this need must build good health as well as skill.

Bread or toast with every well-balanced meal helps supply sustained food-energy needed for endurance.

And BREAD is one of the best sources of Food-Energy

The girl who is taught to make bread an important part of each meal learns a valuable lesson in good nutrition and economy.

FORWARD GOES AMERICA in a march to greater national strength! And the task is not only one of more machines, more ships and planes. It's a march towards greater *physical* fitness.

Important in the nation today is a well-balanced diet. Bread contributes food-energy needed for physical fitness.

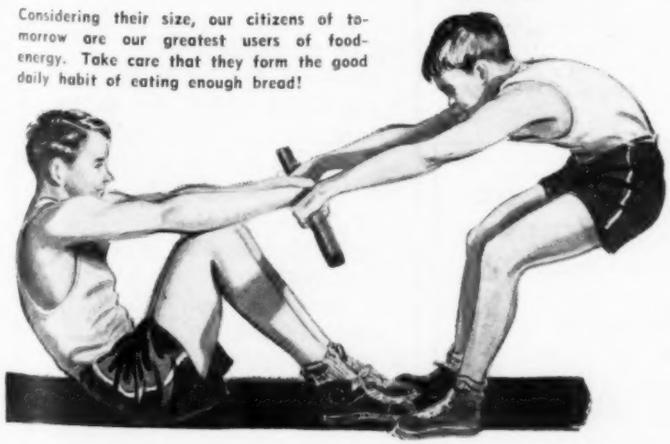
Modern diet authorities recognize that one of our best and cheapest sources of food-energy is bread. It supplies food-energy for immediate needs, and if not utilized, the food-energy is stored up in the body ready to be released when needed.

Make sure your children eat enough bread. Not only for food-energy—but for other food essentials. Bread, made with milk, supplies high-quality protein for muscle building . . . provides valuable minerals, including calcium.

Serve bread at every meal.

For further information about Bread, write to the Department of Nutrition, American Institute of Baking, 10 Rockefeller Plaza, New York, N. Y.

Considering their size, our citizens of tomorrow are our greatest users of food-energy. Take care that they form the good daily habit of eating enough bread!



BUY BAKERS' BREAD

The modern bakers' bread, made with milk, is one of the best and cheapest sources of food-energy you can give a child. It also supplies muscle-building food . . . contributes valuable minerals, including calcium and phosphorus . . . and is nearly 100% digestible.

Copyright, 1941, by Standard Brands Incorporated

The week of April 21-26 is NATIONAL RETAIL BAKERS' WEEK—a time to remember that bakers are ever alert to make bread more valuable to national health.

What every family should know about

Tuberculosis

Doctors make effective use of the fluoroscope and the X-ray film in fighting tuberculosis.

THE NATIONAL TUBERCULOSIS ASSOCIATION and at least one State are sounding as their slogan this year, "No more tuberculosis by 1960!"

Authorities experienced in campaigning against the disease believe that this is not simply an enthusiastic dream. For medical science today knows how to control tuberculosis. And the disease is definitely on the run wherever a systematic and vigorous fight has been waged against it.

An example of one such fight is Metropolitan Life Insurance Company's experience with its own family of employees.

In its campaign to stamp out tuberculosis, the Company has recognized the value of two basic activities that *every* family can practice:

1. Looking for tuberculosis among apparently healthy people.
2. Discovering tuberculosis in early stages when its cure is easiest.

As a routine part of the physical examination of its employees, the Company makes regular use of the fluoroscope and the X-ray film in checking up on lungs.

As a result of this program, tuberculosis among Home Office employees has been virtually eliminated. And nearly all the few cases that do occur are detected in the earliest stage—*when cure can be quickest and most certain.*

In this story of our family, there is a lesson for *every* family.

Tuberculosis must be searched for. When it is—by skilled doctors, aided by X-rays and other modern techniques—unsuspected cases are discovered. And when enough of these cases are found early, tuberculosis is conquered—eliminated as a major menace to those we love.

We should look for tuberculosis first among those most likely to be susceptible to the disease. Such as:

> Boys and girls in their late teens; young adults, particularly young mothers; workers exposed to dangerous industrial dusts; *all* people, regardless of age, who have been in contact with an active case of tuberculosis, especially within their own families.

There are seldom any signs or symptoms when the disease *begins.* It is then that tuberculosis can be "seen" by the X-ray—the most accurate diagnostic tool available—long before it can be "heard" by the stethoscope, detected in sputum, or felt by the victim. It is then that the disease can be most effectively treated and its spread prevented.

To help you protect your family against tuberculosis wherever you may live, Metropolitan offers a helpful free booklet, "Tuberculosis." Address Booklet Department 441-Z.

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Metropolitan Life Insurance Company

(A MUTUAL COMPANY)

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1 MADISON AVENUE, NEW YORK, N. Y.

MAKE LOVE A HABIT

(Continued from page 272)

emotional disturbance, it upsets the formation of a habit, or forms a new and antagonistic habit. You are going down a dark passageway, and suddenly bump your head against a low beam which you did not see. You suffer a shock. You may go down that passageway a hundred times in the future, but every time you will instinctively duck your head as you approach the beam. This one shock has changed your behavior permanently.

Marriage is no different. An emotional shock, especially during the early months, or years, of marriage when you both are living at a high emotional level, may change your whole pattern of life.

Make love a habit, and permit no exceptions to occur until the process is complete. When is the process complete? In this case, not until you die, of course. You can't afford to make any exceptions to love at any time.

To these principles, James adds another suggestion: "Seize the very first possible opportunity to act on every resolution you make." Never delay; never let a chance go by. Don't wait for him to take the first step; don't hold off hoping that she will be the first to apologize. Obey your impulses—provided they are a part of a permanent pattern of life that is valuable to you.

By following these elementary principles of habit formation, you can make your love permanent. By neglecting them and depending merely on the whims and eddies of purposeless sentiment, you can go far to insure that your love will not be permanent.

After all, love can't be anything but a habit which has to be acquired like any other habit. Miss S. wasn't born in love with Jack, and you were not born in love with your wife. It is something that you must achieve; and practice makes perfect.

"I have observed," said Abraham Lincoln, "that most people are about as happy as they have made up their minds to be." It is certainly true of happiness in marriage.

Desserts should not supplant more essential dietary foods.

Desserts for Children

Milk is an excellent basis for the preparation of many desserts

MOST CHILDREN, like adults, welcome dessert. In this country dessert is a course of fruit, pastry, pudding or ice cream served at the close of the meal. But not all forms of these desserts are suitable for children.

From a physiologic point of view, the custom of ending the meal with a suitable dessert probably serves two purposes: that of completely satisfying the appetite and that of providing a final psychic stimulus to the secretion of digestive juices in the stomach. These juices are helpful but not essential for the digestion of the meal. Thus, a serving of dessert, attractive in appearance and flavor, is a useful, though not indispensable, part of the meal.

Desserts, except fruit, have a high content of sugar or fat, or both, and therefore sate the appetite. It is for this reason that children should not be given dessert until the main portion of their meal is consumed. Desserts must not be permitted to push more essential foods off the menu.

To obtain adequate amounts of essential nutrients, an active, healthy child should receive each day the following foods in approximately the quantities listed:

Milk: Three or four cups daily.

Vegetables: Two servings daily; if possible, two servings besides potatoes. Green or yellow vegetables at least three or four times a week, and preferably daily.

Fruit: One or two servings every day, with emphasis on citrus fruits, or tomato juice. At least one of the fruits or vegetables should be served raw, particularly if citrus fruits or tomatoes are not readily available.

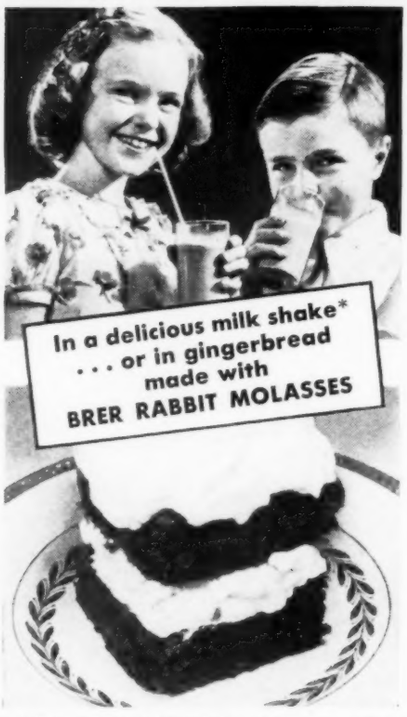
Fat: Three or more pats of butter or of oleomargarine which has been fortified with vitamin A. Unfortified oleomargarine is undesirable in the diets of children because it lacks vitamin A.

Cereal: Whole-grain cereal or whole-wheat bread or its nutritional equivalent in "restored" products; at least one and preferably two or more servings daily.

Meat, fish and egg: One serving of a food, in addition to milk, that is rich in protein. For younger children, one egg, in addition to the specified amounts of milk, supplies adequate amounts of protein. A serving of meat may be substituted for the egg, or may be fed in addition to the egg, especially as the child grows older.

For the normal, active preschool child, these foods, in the portions

2 ways to give your child MORE IRON



IT'S GOOD NEWS—this easy way to give children extra iron! Not in medicines, mind you . . . but in a food children consider a real treat.

Recent scientific tests have proved that New Orleans molasses is second only to beef liver as a rich food source of iron. (All the tests were made with Brer Rabbit New Orleans Molasses.) 3 tablespoons of Brer Rabbit Molasses will supply about one-third of your child's total daily iron requirements.

*__Molasses Milk Shake__—Mix one or more tablespoons of Brer Rabbit Molasses with a glass of milk.

__Brer Rabbit New Orleans Molasses__ comes in two flavors—Green Label, a dark, full-flavored molasses; Gold Label, a light, mild-flavored molasses.

FREE COOK BOOK PENICK & FORD, Ltd., Inc., New Orleans, La., Dept. H-14
Please send me Brer Rabbit's new book of over 100 ways to use molasses—in gingerbreads, cookies, cakes, breads, main dishes, desserts, puddings, ice creams, candies. Colorful, washable cover! Illustrated!

Name_____
(Print name and address)
Street_____
City_____ State_____

suited to the young child, will supply from approximately 1,200 to 1,800 calories, or approximately his entire energy requirement.

Thus, if the necessary nutrients are to be provided, the diets of young children should not be "diluted" with desserts which provide little besides calories. If a dessert is to be included in the young child's diet it should carry its full share of the various dietary essentials.

Orange, grapefruit or tomato juice, as a source of vitamin C, is customarily given to young children as the breakfast fruit, or as a part of a regular scheduled mid-morning feeding. The second portion of fruit may serve as the dessert for either the noon or the evening meal. The fresh or cooked fruit is best served alone. For variety, the slightly sweetened, undiluted fruit juice may be stiffened with gelatin and served with chopped fruit, nuts, or other suitable topping. The fruit also may be combined with rice, tapioca, or farina, in the preparation of a simple pudding.

Milk lends itself to the preparation of a wide variety of desserts. It may be used with sufficient rennin to change the milk into a custard-like dessert, or combined with eggs to form a simple custard, either plain or frozen. Milk also is an essential ingredient in fruit and cereal puddings. Such use of milk affords an opportunity to vary the form in which the essential food is fed. Thus, desserts made largely of milk may be a means of inducing children to take the daily quota of milk which is considered desirable.

The proportions by weight of milk, fruit or fruit juice, eggs and cereals in recipes of some simple desserts suitable for home preparation for young children, are listed in the accompanying table. It will be noted from this table that the majority of these desserts contain not less than 75 per cent milk, or fruit, or a combination of both, and that none contains less than 50 per cent of these ingredients.

A number of prepared dessert products intended for feeding to young children are now marketed by several manufacturers. No federal standards for the composition of these products, as a class, have been established. However, acceptable commercial dessert products intended for feeding children or invalids should not be inferior to home-made desserts which are considered suitable for this purpose. The Council, in considering the acceptability of such commercial products, has reached the decision: "Commercial dessert products represented for use in the feeding of young children must contain milk, or fruit, or a combination of these two ingredients, in amounts which constitute at least 50 per cent of the total weight of the product. Prepared desserts which contain less than 50 per cent by weight of milk, or fruit, or a combination of milk and fruit, are not considered eligible for acceptance or for description in the book 'Accepted Foods and Their Nutritional Significance.'" Elsewhere in this issue are described some recently accepted dessert products suitable for young children.

Proportions of Milk, Fruit, Eggs, Cereal and Sugar in Some Simple Recipes for Desserts Suitable for Young Children

	Milk, %	Fruit or Fruit Juice, %	Milk and Fruit, %	Eggs, %	Added Cereal and Sugar %
Cornstarch pudding (blanc mange)	91.2	....	....	....	8.7
Baked custard	79.1	....	....	15 3	5.6
Rice pudding	81.8	8.1	89.9	....	10.1
Cream tapioca pudding	74.1	....	....	14.3	11.6
Prune tapioca pudding	52.9	27.7	80.6	10.2	8.9
Orange tapioca	25.2	27.8	53.0	....	20.0
Fruit gelatin dessert	....	77.2	....	....	....

Data for all products except fruit gelatin are derived from recipes given by Mary E. Sweeney and Dorothy C. Buck: How to Feed Young Children in the Home, Merrill Palmer School, Detroit. Data for fruit gelatin dessert are derived from the recipes given by Mary E. Sweeney and Dorothy C. Buck: How to Feed Children in Nursery Schools, Merrill Palmer School, Detroit.

Let the Scales Check Your Calories

Calory counting is a useless task unless you are sure of the exact ingredients in the foods you eat

By AMALIA LAUTZ

MANY PEOPLE think of their plump friends painfully counting calories, hoping to reduce. But despite their meals becoming a nightmare of arithmetic, the scales often do not show results. Gradually, they skip counting at some meals, and more and more between-meal snacks are taken without estimation. Finally, calory counting becomes infrequent and then is given up in despair.

Calory counting is a useless burden for any but the person who knows the ingredients in the recipes consumed. Calories cannot be counted with any degree of accuracy unless every part of the serving of food has been weighed, or at least carefully measured, so that it can be included in the total caloric value for each definite portion of food. It is a dangerous occupation unless one is aware of all food constituents required for health. Even with a diet which is adequate in all necessary substances except calories, disastrous physical and nervous conditions may result from reduction, especially from rapid reduction.

If you wish to reduce, first be sure that you have:

(1) A thorough medical examination to find out if reduction is advisable, and if a high roughage diet, which is most effective, is suited to your digestion.

WITH THE AMAZING NEW

NATIONAL

PRESTO COOKER

RETAINS GARDEN-FRESH FLAVORS AND COLORS OF VEGETABLES—SAVES VITAMINS AND MINERAL SALTS

Everyone in the family, children and adults too, love their vegetables cooked in the new lightning-fast PRESTO. And you'll enjoy preparing them the easy simple PRESTO way that just takes split minutes. Instead of pouring off the precious vitamins and mineral salts, your children will thrive on their health-building goodness. A thousand times a year you will save time, money, fuel and flavors with your PRESTO preparing cereals, soups, stews. Inexpensive meats are made tender in minutes instead of hours. See the new PRESTO at your leading housewares department.

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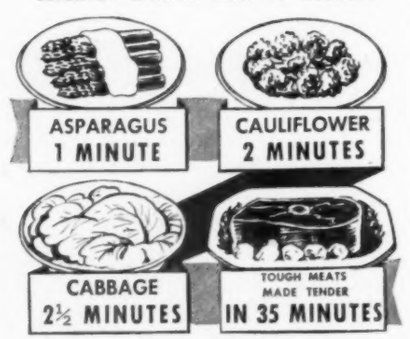
SLIGHTLY HIGHER WEST OF ROCKIES



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(2) A daily diet rich in all food constituents, except energy.

(3) A food intake in which the energy value or calories total less than those expended.

(4) A check on the actual calories secured from the food eaten, by intelligent weighing.

(5) Examinations by a physician after substantial amounts of weight have been lost to determine the physical and nervous effects of reduction and the advisability of its continuance.

In considering the reducing diet the first thing to focus on is not what foods to leave out, but which to eat. Because the total amount of food must be limited in energy, a special effort to make the diet nutritionally adequate otherwise is necessary. Minerals and vitamins commonly deficient and other substances must be fully supplied. In order to remain healthy, the body must receive a full quota of complete protein, calcium, phosphorus, iron, iodine, vitamin A or carotene, B vitamins including thiamine, nicotinic acid and riboflavin, and vitamins C and D, which are frequently found low in the American diet. Fortunately, if these substances are sufficiently supplied by the daily food, other minerals and vitamins not so likely to be deficient are supplied also.

If you wish to reduce both healthfully and effectively you should include the following foods each day:

Two or three servings of lean meat and eggs, or oysters, shrimp, lobster or nonoily fish for high quality protein, iron, phosphorus and B vitamins.

Three servings of raw nonstarchy fruit, including tomatoes, for vitamin C, at least.

As many green leafy vegetables—for vitamin A—and other nonstarchy vegetables as can be eaten for vitamins, minerals and nonfattening bulk.

Two glasses of whole milk for calcium and other minerals and vitamins.

Not more than 3 servings of whole wheat bread, potatoes or bananas for minerals and vitamins as well as starch.

Not more than 3 teaspoons or restaurant servings of butter for palatability and additional vitamin A, or 3 tablespoons of thin cream.

Iodized table salt for iodine, if not living near the sea.

Direct warm outdoor sunlight will produce vitamin D in the body and during the winter the physician will suggest a nonfattening concentrate of fish liver oil or its equivalent to replace the vitamin D not obtainable through sunshine.

About 1,200 to 1,600 calories a day are provided by the foods listed if taken raw or plainly cooked, that is boiled, baked, steamed, broiled, or roasted, without additions of fats, oils, sugar, flour, or other high calorie foods. The listed foods are the basis for all meals and between-meal lunches taken during one day and can be divided and distributed as desired in regular meals including between-meal snacks, which should also be regularly scheduled if you get hungry or desire them. Raw fruit, or part of the milk, taken half way between meals, or before bed time, help to take the edge off appetite, as does a glass of water taken just before meals.

Tea with lemon, or black coffee without sugar, can be taken as desired. The cream allowed in the daily list can be used in beverages or otherwise when it is preferred instead of the butter. Thin, clear, fat-free soups, such as consommé, tomato bouillon and clam broth may also be used in any quantity desired. They may be eaten in jellied form, which many people prefer, especially in summer.

Vinegar and seasonings aid palatability without increasing calories, though salt may increase weight temporarily. However, this weight is not due to increased body fat and is as easily lost as gained. Salt simply helps retain water in the body. Water is constantly lost in breath and in unconscious perspiration, even in winter, and great amounts are lost when perspiration occurs freely as in hot weather, or during active exercise. "Nonfattening" salad dressings which contain oil are not advisable. It is true that the mineral oil in them is not a food oil, is not absorbed from the intestine and so is not fattening. However, mineral oil is laxative, and when it is taken with or close to a meal dissolves fat soluble vitamins such as vitamins A and D and carries them out of the body without absorption or utilization.

Fats and oils, other than mineral oil, sugars and syrups, dry foods in general and starchy foods are con-

centrated sources of energy, high in calories and consequently fattening. Both fat and sugar are often hidden and insidious sources of calories, for they melt and blend with food in cooking and are therefore unnoticed when eaten. Each tablespoon of fat, such as cooking fat, meat fat and salad oil adds about 125 calories; and each tablespoon of sugar adds 50 calories. The greatest hindrances to reduction are fatty and sweet foods, such as desserts, drug store drinks and ice cream dishes, candy, cakes, cookies, pancakes, waffles, sweet rolls, fritters and all fried foods, gravies, salad dressings and fat meats.

Dry foods in general are also concentrated sources of energy: 1 average plain cracker furnishes 30 calories, 1 tablespoon of shelled peanuts 45, 1 tablespoon of grated cheese 35, 1 tablespoon of raisins 30, and 1 prune 25 calories. Starchy foods such as bread and rolls, macaroni, spaghetti, noodles, rice, breakfast cereals, corn, shell beans, potatoes and bananas are also high in energy. Flour and cornstarch, like fats and sugar, may be sources of hidden calories; each tablespoon of flour used in cooking adds 28, and each tablespoon of cornstarch contributes 22 calories.

The average amount of energy required by a man doing physically inactive work without exercise is about 2,400 calories a day; a sedentary woman needs about 2,100 calories for the same length of time. Foods furnishing fewer calories than the amount expended by the body will decrease body weight. However, the actual energy output of each person varies greatly. Physical activity increases the combustion of food eaten, or the burning of body substances enormously. The number of food calories required to keep the body from losing weight increases correspondingly. Then, too, some people are more tense than others and use up energy by keeping their muscles rigid. Tense people habitually put more muscular energy into quiet occupations such as calculating, writing, sewing, and even into holding a book and turning pages while they read, and ever so much more energy into physically active work and play than do people who are habitually more relaxed. The hours of sleep and rest of those who relax are usually longer and certainly more quiet than of those who are tense.

Taste the delicious difference in this wonderful

NEW FORM OF BRAN

New DOUBLE-MILLING process refines texture of NATIONAL BISCUIT 100% BRAN

Check its Advantages

This tempting cereal helps relieve that common type of constipation caused by insufficient bulk in the diet. ✓

Made by an improved process of Double-Milling, which further breaks down bran fiber, making it less likely to be irritating. ✓

It's a deliciously different New Form of Bran that you will enjoy eating for flavor. ✓

Contains all the goodness of 100% Whole Bran. ✓

Furnishes significant amounts of phosphorus and iron and is a good source of Vitamin B_1. ✓

Accepted by the Council on Foods of the American Medical Association. ✓

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You'll change your ideas about bran when you try the new National Biscuit 100% Bran. It's so delicious in flavor . . . so *gentle* in action! Eat it as a cereal . . . try the recipe for muffins on the package. If your constipation is not helped in this simple manner—consult a competent physician.

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Start your baby with the full flavor and food value of properly cooked fresh vegetables and fruits. Strain them quicker, easier and cheaper, too, with the Foley Strainer or Foley Food Mill. Just a few turns separates fibers and strains food fine enough for the smallest baby. Thousands of doctors approve the Foley Strainer at the American Medical Association Convention each year.

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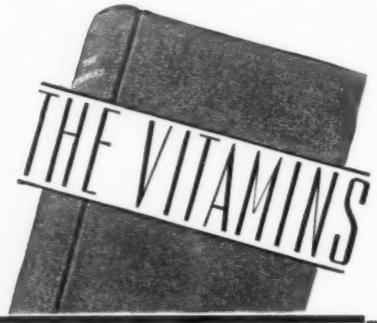

A 637-Page Summary of Present Knowledge

More than thirty outstanding authorities in the fields of medicine, pediatrics, chemistry, biology and nutrition have given their best thought to the compilation of this book. Being technical, it obviously is not "for light reading", but will prove of interest and value to dietitians, nurses, teachers of home economics and health, and all scientific-minded persons who take their vitamins seriously.

PARTIAL TABLE OF CONTENTS

Vitamin A
Chemistry, Physiology, Pathology and Therapeutics; Methods of Assay and Food Sources; Requirements.

Vitamin B
Complex; Thiamin (Vitamin B_1); Riboflavin—Physiology, Pathology; Pellagra.

Vitamin C
Deficiency; Dietary Sources; Requirements; Pharmacology and Therapeutics.

Vitamin D
Requirement; Preparations; Ultraviolet Therapy; Physical and Clinical Aspects.

Vitamin E and Other Factors

637 pages, 8½ x 5½ inches. Red imitation leather binding. Price $1.50

AMERICAN MEDICAL ASSOCIATION
535 N. Dearborn St., Dept. V .Chicago

Sleep and rest, especially relaxed sleep, lower the energy output and consequently the calories required from food to keep weight constant. People differ also in the absorption of the food eaten and the rate at which it is oxidized or stored in the tissues. Digestion and absorption in the intestines are further completed in some people than in others. Also, some people tend to store calories in the form of body fat, while others need the food energy for fuel and burn it up without readily gaining weight.

Only the scales can indicate how much food each person must actually eat habitually to keep his weight constant or to lose. Weighing—to discover if the food intake should be reduced—must be done intelligently and at sufficiently long intervals if it is to show whether or not body weight is actually being lost. Scales should be reasonably accurate, and, to rule out variations between different scales, it is preferable to use the same scales for checking the effect of a reducing diet. Weighing should be done at the same time of day and with the same relation to meals, if the weighing is not before breakfast. If clothes are worn, the weight of clothing should be the same at each weighing. A change to heavier or lighter clothing, a meal (especially with beverages), differences in elimination of urine or of bowel movements, drinking water, perspiration, or a salty meal (even if taken the day before) followed by the usual increase in drinking water can make pounds of difference that have nothing to do with actual change of body weight due to burning or increasing body fat.

Variations of a pound or two from day to day mean nothing at all. Even the weight after one week of dieting may or may not be significant. It is the weight week after week that counts and shows if you are truly loosing fat, or if you are eating too many calories and are failing to reduce. Gradual weight loss with a persistent effort to learn and establish the necessary food habits which determine the caloric intake that brings about reduction is, as a rule, the best procedure.

The basic foods listed as essential for furnishing proteins, minerals and vitamins in the reducing diet—lean meat, eggs, sea food, nonstarchy fruits and vegetables, some milk, and a small amount of starchy food such as whole wheat bread, potato or banana, with a little fat in the form of butter or cream—average about 1,400 calories a day, approximately a thousand calories less than the average sedentary person requires. Even when the list is adhered to closely, without addition of other foods having concentrated caloric value, there will be great variations in the rate of losing weight of people who live and work similarly. In time some people will find that they have secured a steady but slow weight loss. Others may find that they lose too rapidly for physical and nervous health and that their skin wrinkles because the fat deposits under it are removed too quickly. Too much speed in weight reduction will make it possible and best to add some food. With regular daily exercise or physical work more food can be eaten. Then, too, comes the happy day for all the faithful when the desired weight loss is at last achieved.

In order that the diet remain effective, all addition of food should be gradual and must be carefully controlled. It is wisest for the first two weeks to add only one serving a day of a desired kind of food, not too high in calories. Then if the weight is still going down, another serving of a preferred food can be added and the results similarly checked by the scales. In adding foods containing concentrated energy, simple nonsweet starchy foods such as breads, potatoes, bananas, or corn, with a little visible fat in the form of extra butter or cream for palatability should be tried out first. Remember that distinctly sweet and fatty foods are dangerous foes of slimness. Consciousness that many hundreds of calories lurk in the rich dessert, the luscious soda fountain concoction and in the bar of candy will prevent many a bitter disappointment when the weight is checked and patient effort in weight reduction found undone.

To achieve good results in weight reduction, eat first the essential basic foods which will furnish you with the minerals, vitamins and other food substances you need. Avoid fatty, sweet, dry and starchy foods in the order given. Then find the amount of these high energy foods you need by what you weigh, and thus let the scales check your calories.

THE WHITE POTATO

"PLENTY OF THEM" is the market story in brief for potatoes. New spuds and old spuds are adding up to many, many spuds. New ones from the 1940 crop, largest since 1934, are plentiful and their quality good. There are ample supplies of potatoes for the "one serving a day," regardless of whether the food budget is liberal or limited, as recommended by the Bureau of Home Economics, U. S. Department of Agriculture.

The difference in food value between the old and the new potatoes is not large enough to influence the homemaker's choice, as far as is now known. Flavor difference may be affected and price difference could be. New potatoes grown in the South and shipped long distances naturally cost more at this time of year. In general, new potatoes contain a little more water and a trifle less carbohydrate and mineral salts.

High food value in relation to cost, plus inherent good flavor suggest excellent reasons for eating potatoes frequently, whether old or new. Potatoes deserve extra attention in the late winter and early spring because of their vitamin C content.

Many of the fruits and vegetables frequently listed for their vitamin C value are not available, or cost too much during this in-between season. Recent scientific tests on vitamin C, or ascorbic acid, of potatoes, a year-round food, are most encouraging. Indications are that the potato offers much of this vitamin, even after storage and no matter how cooked.

Because vitamin C is easily destroyed, however, there is some loss in the cooking. To keep the greatest amount of the vitamin, cook the potatoes in their jackets. Such cooking will also save the most vitamin B_1, another important food value of the vegetable. If the potatoes are

(Continued on page 319)

A Pledge:

BE IT RESOLVED: That the Board of Directors of the American Institute of Baking, recognizing the importance of and the need for improvements in our national nutrition, both as a defense measure and as a permanent contribution to national health, hereby pledges the resources of this scientific and educational agency of the American Baking Industry to this end, and particularly in helping to bring about the more general availability of nourishing breads enriched in vitamins and minerals in accordance with government standards.

. . . and its Fulfillment

The above is the resolution adopted by the American Baking Industry, January 22, 1941, and published in the February 22nd issue of the Journal of the American Medical Association. It was intended to be similarly republished in this space.

But thoughts become deeds with a quick pace these days. And the bread above described is now being actually baked this very day . . . on sale by your baker at no increase in price . . . nourishing white bread enriched with vitamins and minerals natural to whole wheat—with Thiamine (Vitamin B_1)—with the pellagra-preventing vitamin—with iron.

This report is being made to you . . . particularly to you who are parents and teachers . . . that you may further encourage children whose care is your responsibility to eat this better, enriched bread that the American Baking Industry now provides in the interest of a better, stronger, healthier America . . . and young America . . . so essential in our times . . . our very troublesome times.

For authoritative information on bread, write to

DEPARTMENT OF NUTRITION

American Institute of Baking

10 ROCKEFELLER PLAZA NEW YORK, N. Y.

We were happy when Baby came

She was such a good baby during the nursing period but afterwards absolutely refused to drink her milk.

I was desperate—I went to see my doctor, and he suggested rennet-custards.

How baby loves these cool, creamy, digestible desserts! She gets the milk she needs and all of us are very happy!

Add milk to your child's diet this easy way!

Serve milk as a dessert! In delicious rennet-custards! Colorful, appetizing, easy to make in only a minute! No eggs, no cooking, no baking! And the rennet enzyme makes them easier to digest* than plain milk.

Make rennet-custards with either:

"Junket" Rennet Powder—6 flavors (at grocers).
"Junket" Rennet Tablets—not sweetened or flavored. Add sugar, flavor to taste. Now more economical—12 to the package instead of 10—(at grocers and druggists):

*The rennet enzyme makes milk form soft, fine, easier to digest curds in the stomach.

FREE! Send Today for "121 TESTED RECIPES."

"THE 'JUNKET' FOLKS," Dept. 334
Chr. Hansen's Laboratory, Inc.
Little Falls, New York
Please send me your free recipe book.

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RECENTLY ACCEPTED FOODS

The American Medical Association's Council on Foods and Nutrition has accepted the following additional foods as conforming to the rules of the Council, described in the book "Accepted Foods and Their Nutritional Significance."

Beech-Nut Chopped Foods

Vegetables and Lamb with Rice, a mixture of cooked, chopped carrots, potatoes, celery, onions, milk, lamb, lamb liver, rice and sodium chloride. It is useful for feeding infants during the latter part of the first year. Since this product has been cooked and then processed in the glass container for the required amount of time, it is necessary only to heat it before serving.

Pillsbury's Farina with Added Vitamin B_1

Ordinary farina, granulated particles of wheat endosperm, is deficient in vitamin B_1 because most of this vitamin is located in the bran and germ portions of the wheat kernels which are removed in the making of farina. The product listed above is a farina that has been enriched with thiamine hydrochloride (crystalline vitamin B_1) in such an amount that it provides 900 international units of vitamin B_1 to the pound. One ounce (the amount required to prepare a serving of the cooked cereal) provides about 56 international units of vitamin B_1. A cooked serving of this cereal may not provide quite as much vitamin B_1 as an ounce of the uncooked cereal would indicate since some of the vitamin B_1 may be destroyed by cooking. However, the product still may be considered an excellent source of vitamin B_1. For this reason, it is useful as a cereal in the diet of infants and children, as well as adults.

Bird's Eye Brand Quick-Frozen Spinach

A quick-frozen, ready to cook, spinach packed in cellophane-lined cartons which are sealed in wax paper. The cartons are stored in special refrigerators at a temperature of 18 C. until purchased by the consumer. Two sizes of cartons are available, a 14 ounce size and a 2½ pound institutional size. The 14 ounce size carton contains sufficient spinach for 4 servings. A serving of quick-frozen spinach (3½ ounces) provides about 30,000 international units of vitamin A, 340 international units of vitamin B_1, 110 Sherman Bourquin units of vitamin G and 660 international units of vitamin C.

Farnsworth Unsweetened Apple Juice

According to data obtained by the manufacturer, this brand of apple juice provides from 5 to 20 international units of vitamin C for a 7 ounce serving. While apple juice does not provide as much vitamin C as tomato juice (See HYGEIA, February, page 126) it is a refreshing juice and is useful especially for invalids, for supplying needed fluids. Tests for lead and arsenic show that the product complies with Council requirements for freedom from toxic spray residues.

Heinz Junior Foods

(1) *Apple Fig and Date Dessert,* a cooked mixture of apples, figs, dates, sugar and lemon juice.

(2) *Pineapple Rice Pudding,* a cooked mixture of crushed pineapple, milk, sugar, rice, eggs, cornstarch and salt.

(3) *Prune Pudding,* a cooked mixture of milk, prune pulp, sugar, farina, eggs, cornstarch and salt.

The amount of various vitamins contributed to the child's diet by an average serving (¼ cup or 50 grams) of these desserts based on data obtained by the firm are as follows (the number corresponds to product of similar number listed above):

Vitamin	Unit	(1)	(2)	(3)
Vitamin A	International	3.5	19	150
Vitamin B_1	International	3	4.5	5
Vitamin C	International	25	8	32
Vitamin G	Sher.-Bourquin	8.5	14	35

Clapp's Junior Foods

Pineapple Rice Dessert with Raisins, a cooked mixture of milk,

pineapple, rice, sugar, seedless raisins, salt and vanilla extract.

The four kinds of dessert products listed above are useful in the feeding of young children. Each product contains milk, or fruit, or both, in amounts not less than 50 per cent of its total weight. Commercially prepared dessert products which contain less than 50 per cent by weight of milk and fruit or a combination of milk and fruit cannot carry their share of vitamins and minerals and for this reason are not considered eligible for acceptance and description in the book "Accepted Foods and Their Nutritional Significance."

Clapp's Strained Foods

Strained Pears and Peaches, a strained mixture of Kieffer pears and Yellow Cling peaches, with a small amount of added sugar.

Gerber's Strained Foods

Strained Pear and Pineapple, a strained mixture of pear and pineapple with a small amount of added sugar.

Heat and Pneumonia

Penetrating heat, administered by means of electric current apparatus, is a simple and effective aid in the treatment of pneumonia, Ben L. Boynton, Norfolk, Va., declares in the *Virginia Medical Monthly.* He recommends this measure to supplement other forms of treatment rather than to take their place.

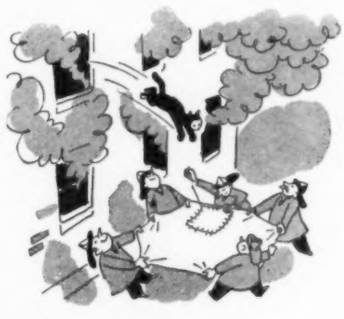
Apology

In the issue of Hygeia for October 1940 appeared an article by Harriet Morgan Fyler entitled "Acid is as Acid Does." Dr. Fyler is a former student of Dr. E. V. McCollum, who, incidentally, wrote on the same subject for McCall's Magazine in August 1939, under the title "Test Yourself." In the preparation of her article, Dr. Fyler based her opinions largely on the statements of Dr. McCollum and in a large part of the article used direct quotations without quotation marks. Hygeia regrets this incident greatly. Indeed, we shall appreciate having our readers call to our attention any instances in which plagiarism occurs, either consciously or unconsciously.

FAMOUS WORDS OF ADVICE—

1. "Necessity is the mother of invention!"

2. "Out of sight, out of mind!"



3. "A stitch in time saves nine!"

4. "DRINK POSTUM, INSTEAD!"

IF YOUR DOCTOR laid down the law and said, "No coffee for you from today on," you might think it would be pretty hard to observe this law.

But actually, it isn't at all a tough dictum to follow. All you have to do is "Drink Postum, instead," as many doctors will tell you.

For Postum is one of the most cheering, satisfying, hot, mealtime drinks you can find. Many people who thought they liked coffee and nothing else are today singing Postum's praises. It's the favorite mealtime drink in millions of American homes!

And it's the *ideal* hot drink, without question. For it contains no caffein or any other stimulant. It's simply choice whole wheat and wheat bran, roasted and slightly sweetened.

Very economical and easy to fix!

Postum costs less than ½¢ a cup. It comes in two easy-to-prepare forms: *Postum Cereal,* brewed like coffee; and *Instant Postum,* made instantly in the cup. A product of General Foods.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

ASK YOUR DOCTOR ABOUT POSTUM

PTOMAINE POISONING DOESN'T EXIST

(*Continued from page 287*)

oughly sterilized may retain some of the bacteria present in the fresh food and these bacteria grow in the can after it is sealed. Home canned foods are much more frequently responsible for cases of botulism than commercially canned foods. Commercially canned foods almost never cause botulism.

Food poisoning due to botulinus cannot be detected with surety by smell or taste. In some instances the food found responsible was said to have looked spoiled, or smelled tainted, or tasted wrong, but frequently no such observations were made. Canned food that shows evidence of gas formation, or other evidence of spoilage, should not be eaten, especially if home processed. Merely tasting such food has been fatal.

Many substances can get into food, either accidentally or intentionally, and if in sufficient concentration will cause illness. Among the more frequent of these substances are lead, arsenic, cyanide and some of the alkaloidal poisons. If a large amount of any one of these substances is taken, the immediate illness is usually characterized by nausea and vomiting. These symptoms are sometimes followed by others which vary according to the type of poison. If only small amounts of these poisons are taken, no symptoms will develop unless the small amounts are repeated frequently over a period of time. In such cases signs and symptoms of chronic poisoning may develop.

Lead finds its way into food occasionally. An epidemic of acute lead poisoning was traced to an odd cause. A batch of bread was baked in an oven heated by a wood fire. On the particular day when the epidemic occurred the baker had stoked his fire with wood from an old boat which had been painted with a paint containing lead. The lead vapor liberated by the fire condensed on the cool dough when it was placed in the oven to bake, and was present in sufficient concentration to cause illness in several people who ate the bread.

Another epidemic of acute lead poisoning occurring a few years ago was traced to red pepper which had been adulterated with red lead and sand.

Lead pipes are occasionally a source of trouble, though more frequently of chronic than of acute poisoning. Water which stands in lead pipes sometimes dissolves enough of the metal to be harmful, especially if the water is used by the same people over a period of time.

Old pewter contains lead and there have been cases of lead poisoning attributed to its use. Acid foods are more apt to dissolve lead from containers than non-acid foods, and the longer the food remains in contact with the lead bearing container the more will be dissolved. Pewter manufactured today does not contain lead.

There is a common superstition that unused food should not be allowed to remain in opened cans. The origin of this belief is lost but it may have been due to a fear that metalic substances would be dissolved by the food standing in the container when exposed to air. Regardless of the origin of the belief, it can be stated with assurance that it does no harm to allow unused canned food to remain in the can until used, provided, of course, that the usual care given any perishable food is exercised, namely cleanliness and refrigeration.

Arsenic is used as a spray for fruit and sometimes a sufficiently large residue of arsenic will remain on the fruit to cause distress in those eating the fruit. Some communities require that all sprayed fruit be washed in a weak acid solution before it is sold. It is a good home practice to wash all fruit before it is eaten, especially when the skin is to be eaten.

Some silver polishes contain cyanide. If silver polished with such a material is not properly washed after polishing, the residue of cyanide may cause illness.

A long list of harmful substances have at one time or another been found in food but such contamination is now relatively infrequent.

By far the most important source of illness attributed to food is due to the growth of bacteria in the food. Most of our raw food contains bacteria. Most of these bacteria are quite harmless and their presence is merely a reflection of the fact that we live in a bacteria-laden environment. Occasionally, however, bacteria capable of producing disease are introduced into food. Many bacteria find food a suitable place in which to grow, so that a few organisms accidentally dropped into food may become many thousands by the time the food is eaten.

The germs which cause the illness, correctly spoken of as food poisoning or food infection, belong to two types. One is the salmonella group of organisms and is most frequently found in meat, fish, or poultry. The other is the staphylococcus group of organisms and is most frequently found in milk products.

Meat, fish and poultry are the foods most frequently infected by the salmonella group of organisms. The animal may have been infected before it was killed, or its flesh may become infected afterwards.

Cattle infected during life with puerperal fever, blood poisoning or certain other diseases, and calves with navel infections, are apt to furnish meat containing bacteria of the salmonella group. The meat of such animals may not show any abnormal signs and it is only by bacteriologic examination that it can be proved harmful. During an outbreak of food poisoning in Ghent in 1895 a veterinary surgeon, who was also a slaughterhouse inspector, was so certain that the suspected meat, in the absence of any abnormal signs, could have no connection with the trouble that he ate two or three pieces of it to demonstrate its harmlessness. He was attacked with severe cholera-like symptoms and died five days later. Bacteria of the salmonella group were found in his body at post mortem.

Not only cattle but hogs are occasionally infected during life. The infrequency with which the meat of the sheep is infected during life is striking. Poultry and fish also suffer from diseases the germs of which may remain in their bodies

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CREAMED GREEN VEGETABLES. A selected group of green vegetables, including kale, green lettuce, green asparagus and peas, are combined with milk and cream.

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LAMB AND LIVER STEW WITH MILK AND CEREALS. Contains lamb meat and liver and chicken liver—making this product an aid in the prevention and correction of nutritional anemia. Choice vegetables increase the vitamin content and improve the flavor.

CHICKEN FARINA VEGETABLE PORRIDGE WITH MILK, WHEAT GERM AND YEAST. Meat and broth of selected chickens, tasty vegetables, liberal amounts of Durum Farina and wheat germ rich in vitamin B-1 are all cooked in milk.

CHOPPED CARROTS. Sweet, mature carrots are chopped coarse enough to require some chewing. The rich orange color indicates its high content of pro-vitamin A.

CHOPPED MIXED VEGETABLES. A nutritious blend of several vegetables highly favored for the diet of young children. Contains potatoes, sweet potatoes, carrots, celery, green beans and onions.

CHOPPED SPINACH. Dark green, curly variety of spinach is cut into particles of such size that only a moderate amount of chewing is required. Good source of vitamins A and C.

PINEAPPLE RICE PUDDING. A delicious rice pudding livened by the refreshing flavor of fancy Hawaiian pineapple. The eggs and milk make it very nutritious.

PRUNE PUDDING. Choice prunes and farina are cooked in milk and enriched with eggs. Less laxative than plain prunes and has an enhanced nutritive value.

APPLE, FIG AND DATE DESSERT. Full-flavored apples are blended with the small-seeded variety of white figs and fancy dates. Lemon juice is added for a touch of tartness.

and produce disease in human beings.

The presence of disease germs of the salmonella group is seldom obvious from the appearance of the dressed meat. Many times, however, the appearance of the whole carcass including the internal organs gives ample evidence that the animal was not healthy when killed.

Meat, fish and poultry may become infected after death. This may happen in the slaughter house by contamination of the hands or instruments of the butcher with germs from the carcass of an infected animal. It may happen during the handling, storing, or transporting of the meat or fish. Human beings do not themselves carry the germs of the salmonella group in their bodies, although they may carry them on their hands if they touch infected material. Rats and mice frequently have salmonella germs present in their bodies and excrete them in their urine and feces. Contamination of food with rat and mouse excrement is an important source of food infection.

Any food which is handled a good deal before it is eaten is more apt to be contaminated than food eaten without such handling, especially if the food remains at room temperature for some hours after handling and before it is eaten. The handling offers an opportunity for germs present on the hands or utensils of the cook to get into the food, and the standing allows time for these few germs to multiply. Made over meat dishes, meat pies, casserole dishes, meat and vegetable salads, and warmed over vegetables all fall within this group. However, if infected food is thoroughly cooked, all harmful bacteria will be killed and the food can be eaten with impunity. The cooking, however, must be thorough; temperatures as high as that of boiling water must reach the interior of the food, a condition frequently not met in the cooking of many types of casserole dishes, especially if the food has been precooked. Food which goes directly from stove to table is almost always safe if the cooking has been adequate. But foods, especially much handled ones, which have been kept for long times are most apt to contain large numbers of bacteria, some of which may be harmful. Hence, the frequent association of food poisoning with picnic lunches, buffet suppers, or meals prepared under makeshift conditions with inadequate facilities for food preparation or preservation.

Milk, and foods made with a large proportion of milk, when infected are infected usually with bacteria of the staphylococcus group rather than with those of the salmonella group. Cream and custard fillings for pies and pastries have been found the most frequently infected of this class of foods. These foods receive a good deal of handling after cooking, they are seldom refrigerated and they often stand for a long time before being eaten. All these conditions are suitable for the rapid growth of any germs which accidentally get into such foods during preparation. Staphylococci, the germs which infect these bakery products, come most frequently from the hands of those in the bake shop, although sometimes they may come from the throats of these people. The food is sometimes contaminated by means of flies, or dirty utensils. Realizing the importance of these bakery products as a source of food poisoning and the difficulty of adequate control, the State of Massachusetts went so far as to prohibit the use, during the summer, of cream fillings for pies, puffs and eclairs.

After food containing germs of either the salmonella or staphylococcus group is eaten, a definite and specific disease is produced. The characteristic symptoms of this disease are due to the irritation of the gastro-intestinal tract and to the absorption by the body of the poisons produced in the food by the bacteria. The symptoms due to irritation of the gastro-intestinal tract are nausea and vomiting and colicky pains in the abdomen and diarrhea; those due to absorption of poisonous material are headache, chill, weakness, faintness, prostration and elevation in temperature. Restlessness, muscular twitching and drowsiness may also occur.

There is always an interval of time elapsing between the consumption of the food and the appearance of the symptoms of the disease. This interval may be very short, from two to six hours, or it may be as long as one to two days. When the interval is short, the offending food is still in the stomach and is removed from the body by vomiting. However, when the interval elapsing between the consumption of the food and the first appearance of illness is long, twenty-four hours or more, several meals may have been taken since the infected food was eaten. The vomitus in these cases will give no clue as to the nature of the offending food. Mistaken diagnoses have often been made by incriminating the food present in the vomitus rather than food eaten one or two days previously.

In addition to the symptoms due to irritation of the gastro-intestinal tract—nausea, vomiting, abdominal pain and diarrhea—there are usually present in patients with food poisoning varying degrees of those symptoms noted above, due to absorption by the body of the poisons made by the bacteria, either out of their own bodies, or out of the foodstuff, namely, headache, chill, weakness and prostration.

Whether the incubation period is long or short, once all of the offending material has been removed, either by vomiting, or by diarrhea, the patient recovers.

A large proportion of any group of people who eat an infected food acquire hte disease. Sometimes as high as 100 per cent of the consumers fall ill, sometimes less than half. Only a very small proportion of those who become ill, die of food poisoning but the proportion varies considerably in different outbreaks. It is seldom over 2 per cent and is often none at all.

It must be pointed out that all illnesses characterized by the symptoms described as due to food poisoning are not due to eating unwholesome food. Other things can cause irritation of the gastro-intestinal tract. Fatigue, worry, excitement, or strong emotion may inhibit normal digestion to such an extent that it becomes necessary for the body to eliminate by vomiting the food it cannot handle at that particular time. In addition, many diseases cause a reflex irritation of the stomach. For example, eye strain may cause vomiting; so may brain tumor. Many of the acute diseases of childhood are ushered in by an attack of vomiting. It is a skilful job in diagnosis to know why a patient vomits.

Bacteria which produce food poisoning do not make food taste or smell any differently than food

Meat . . . and the Dietary Fallacies in the Public Mind

FOOD, because it is so intimately a part of everyday living, often is incorrectly regarded as the cause of illness. "It must have been something I ate" is all too frequently heard.

Meat has received its share of false accusations. For instance, the statement is often heard: "Meat is bad for the kidneys." Nothing could be further from the truth. Physicians know that even in kidney disease the body needs its daily supply of proteins; if this is not furnished by the foods eaten, proteins will be taken from the body's own tissues, and serious damage may result.

Physicians, in advising meat in the diets of Bright's disease and other kidney ailments, high blood pressure, heart disease, and hardening of the arteries, not only recognize the harmlessness of meat, but also realize its value in the well-rounded-out diet needed in these conditions.

An erroneous notion holds that less meat should be eaten in the summer time. During all seasons of the year a sufficient amount of complete proteins is needed. Meat, an excellent source of high quality proteins, is eaten during the hottest months without detriment.

Gout and rheumatism, contrary to popular belief, are neither caused nor made worse by meat, nor do they reduce the daily need for proteins.

It must be remembered that most false notions regarding meat originated many years ago, long before nutrition became the subject of scientific study. Your physician, who has at his disposal modern scientific facts, knows that meat is a valuable source of complete proteins and of the important vitamins B_1, G (B_2), and the pellagra-preventive factor. He also knows that meat is easily digested, that it furnishes the essential minerals, iron, copper, and phosphorus. For these reasons he considers meat an important part of the diet, not only in health but also when illness develops.

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Always drink Kemp's Sun-Rayed—the pure, undiluted juice of WHOLE tomatoes. Delicious. The Sun-Rayed Co., Frankfort, Indiana.

America's Favorites

Dieting?

Watch Your Diet
by E. M. Geraghty. 8 pages. 10 cents.

The Truth About Acidosis
by James A. Tobey. 2 pages. 5 cents.

Pocket Calorie Index
compiled by Esther Bogen Tietz, M.D. 10 cents.

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street, Chicago, Illinois

free of these bacteria. Sometimes food, heavily contaminated with harmful germs, looks, smells and tastes delicious and appetizing; conversely, some foods smelling and tasting putrid are harmless to the consumer. Occasionally, the two conditions go together: putrid food may contain not only the products of decomposition but also bacteria which are harmful. The sense of smell and taste cannot adequately distinguish one from the other.

In a recent survey of 425 epidemics of food poisoning in the United States it was found that in only 28 was the food, ultimately found responsible for the epidemic, suspected of being spoiled prior to the investigation. In 23 of these 28 the disease produced was botulism, but there were 8 other epidemics of botulism where no history of spoiled food could be obtained.

Prevention of all types of food poisoning depends almost entirely upon education, cleanliness and good hygiene.

Foods likely to be confused with poisonous varieties should not be used unless complete dependence can be placed on the knowledge of those gathering the food. Commercially grown mushrooms are safe, but in gathering wild ones any one but an expert may confuse the edible and the poisonous varieties.

Clean, fresh food presents few hazards, but stored foods, preserved foods, foods delayed between producer and consumer are those in which constant vigilance is necessary to avoid contamination. Meats should be taken from healthy animals, cut up and handled in a careful manner by butchers free from disease; bakery goods should be prepared by healthy bakers in clean kitchens. Food must be guarded in transportation and sold in markets and shops in such a way as to be protected from flies, rats, dust and unnecessary human handling. The health of food handlers must be carefully guarded and the sanitary condition of eating places must be maintained by frequent inspection by authorized agents. The danger of eating at roadside stands, or improvised eating places where even a casual glance indicates that sanitary facilities are not adequate for health protection, cannot be overemphasized.

Also, the protection of food supplies is an important part of the national defense program. A country is strong only so long as its population is well. The army and navy are well aware of the necessity for adequate wholesome food for the men in the armed forces, but the large concentration of populations growing up near the army camps and in the territories immediately surrounding some of the newly expanded defense industries has created a problem in some places too great for the local communities to handle. Part of the problem arising out of this sudden shift in population is provision for sanitary facilities and proper handling of food.

Health and efficiency depend more, perhaps, on the food we eat than upon any other single factor. Not only must the food be sufficient in quantity and adequate in all the known dietary essentials, but it must also be free from the danger of causing illness or injury because of harmful ingredients.

ARMY TO UTILIZE CENSUS OF PHYSICIANS BY A. M. A.

The War Department has approved a plan whereby the army will start utilizing the roster being prepared by the American Medical Association of civilian physicians who have agreed to accept commissions in the army when needed for immediate active duty during a national emergency, *The Journal* of the Association reports in announcing the issuance by the Adjutant General of instructions pertaining to the plan. The instructions have been sent to the Surgeon General and to each corps area and department commander of the army.

The White Potato

(Continued from page 311)

pared and boiled, water left after the cooking should be used for soup or gravy.

Cutting pared potatoes in small pieces before boiling may save cooking time, but it will waste food value. If you do pare the potatoes before cooking, cook them as soon as you can. They will lose food value while they soak in water.

Many of the minerals of potatoes, mostly phosphorus and iron, are near the skin, so make the parings thin, or, better still, serve them with the skins.

"To get that mealy, dry perfection in the baked potato, start the baking in a hot oven, and let it bake at about 400 to 425 F. until thoroughly done," says Mrs. Elizabeth Fuller Whiteman of the Bureau of Home Economics. "Whether or not you grease the potato before baking is a matter of personal choice, but remember, if you do, the skin may be soft and greasy.

"To prevent lumps in mashed potatoes, the bane of the novice cook's existence," Mrs. Whiteman's scientific cooking tips go on, "first cook the potatoes thoroughly. Then mash them thoroughly, and be sure the milk you add is hot.

"For crisp, tender French fries, rinse the potato slices in cold water, drain and dry them. Fry them right away, about a cupful at a time, in deep fat of about 375 F. Soaking the potatoes in water for two hours before frying will make them crisper, but will lessen the flavor and food value. The same method is good for shoestring potatoes, made from thin strips of the potato, instead of the wedges used for French frying.

"Crisp-crusted, hashed brown potatoes are tops in flavor, and answer a 'left-over' problem as well. There is a trick in getting the crisp brown crust. Add a little hot water to the melted fat before you add the seasoned potatoes, about a quarter cup of water for four cups of diced potatoes."

Real success in cooking potatoes depends on buying the right potatoes for the use you will make of them. Mealy ones are good for baking or mashing, and waxy ones for salads and creaming. Knowing the variety of potato is an important help in getting the type you want, but varieties vary widely according to where they are grown. Idaho grown Russet Burbanks and Maine grown Green Mountains, for example, are known the country over for their baking quality, but Russet Burbanks and Green Mountains grown in other localities may not measure up to the same standard. Growers in the different localities, however, may produce another variety that is good for baking. Locally grown potatoes are usually cheaper. Many of the new potatoes on the market now are Bliss Triumphs. These are a waxy potato, good for boiling. Old Bliss Triumphs are also on the market.

Regardless of the variety, choose clean, uniform-sized potatoes that are free from cuts, decayed spots and with only a few shallow eyes. Don't buy sunburned potatoes, for the greenish flesh, which indicates the burn, will be bitter. If you buy many potatoes at a time, keep them where it is cool, dark, moist and well ventilated. "Cool" means about 60 F. The darkness is important for the sunburn may come from any light, not only from direct sunshine.

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Enjoy Post's 40% Bran Flakes every morning . . . to help "feel fit as a fiddle"!

A Tribute to Courage

By JOSEPH D. HART

Washington and Jefferson College, Washington, Pa., recently dedicated this chemistry building to Dr. Jesse W. Lazear, an alumnus, who gave his life in 1900 during experiments which later were able to bring yellow fever under control.

A LASTING memorial to one of the noted martyrs of medical science was recently dedicated by Washington and Jefferson College at its annual Founders Day exercises in which "medicine" was the central theme.

The college dedicated a new $300,000 chemistry building to the memory of Dr. Jesse W. Lazear, an alumnus, who gave his life in 1900 in Cuba during experiments which definitely proved the mosquito "stegomyia" was the carrier of yellow fever. This discovery led to conquering the plague that had taken many thousands of lives.

Dr. Lazear died of yellow fever—the "black vomit" of the early Spaniards—after being bitten by one of the carrier mosquitoes with which he was experimenting. He was a member of the Yellow Fever Commission which the United States army had sent to Cuba. One of the most generally accepted versions is that the young physician intentionally permitted himself to be stung by the insect, for a short time earlier he had volunteered to be bitten but one of his associates on the Commission had been chosen for the experiment.

Two of the 3 survivors from a group of 7 soldiers who voluntarily served as "human guinea pigs" during the experiments were honor guests at the dedication of the Lazear Chemistry Hall, and special tribute was paid to them. They are John R. Kissinger, now residing at Huntington, Ind., and John J. Moran, of Havana, Cuba. They were quick to volunteer for the hazardous tests; both were bitten repeatedly by the mosquitoes and each contracted the disease.

The late Major Walter Reed, who was in charge of the Yellow Fever Commission, said of their part in the stirring drama of medicine: "In my opinion, this exhibition of moral courage has never been surpassed in the annals of the Army of the United States."

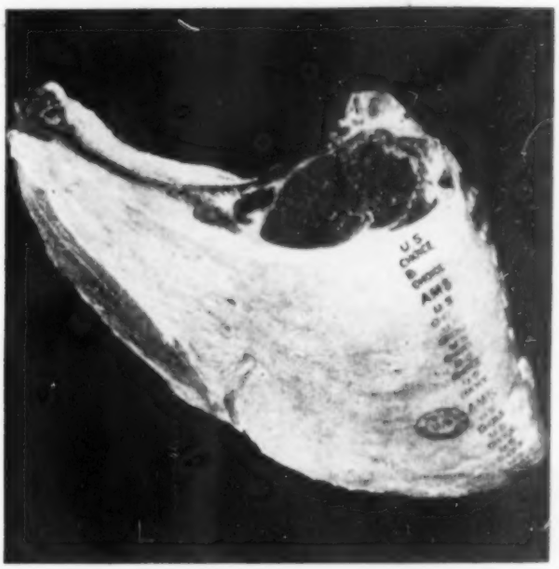
Both of the former soldiers had the unique experience of seeing themselves portrayed on the stage when the college's drama club presented "Yellow Jack," the play by Sidney Coe Howard which dramatizes the yellow fever experiments in Cuba.

Dr. Wilbur A. Sawyer, director of the International Health Division of Rockefeller Foundation and a distinguished authority on yellow fever, was the principal speaker at the dedication of the Lazear Chemistry Hall.

The dramatic story of the work of Dr. Lazear and his soldier associates was related at the college's annual Founders Day banquet by Dr. Philip S. Hench, of Rochester, Minn., a member of the staff of Mayo Clinic. Dr. Hench has just returned from Cuba where, on a special commission from the college, he spent several months studying the work of Lazear and the Yellow Fever Commission.

The Lazear Chemistry Hall is one of three new buildings on a half million dollar addition to the Washington and Jefferson campus which was formally opened on Founders Day. One of the other buildings will house the college's biology department, and in it the zoological laboratory was dedicated as a memorial to Dr. Edwin Linton, referred to by the *New York Times* as "the grand old man of American parasitology." Dr. Linton, who served as a professor at Washington and Jefferson for 38 years, was a founder of the Marine Biological Laboratory at Woods Hole, Mass.

Opening of the new campus addition with its modern buildings for chemistry and biology departments marks a major advance in the premedical department of Washington and Jefferson College, which has sent more than 1,000 graduates into the medical profession.



Look for the PURPLE STAMP

"IF YOU WANT to make sure of getting your money's worth out of what you spend for beef, veal, or lamb, it will pay you to know the Federal meat grades," says W. O. Fraser of the United States Department of Agriculture. Mr. Fraser is in charge of the meat-grading work of the Agricultural Marketing Service, the agency in charge of federal meat grading.

This purple grade stamp vouches for the fact that the meat has been judged for quality by competent officials. On a large cut of meat this stamp has the appearance of a narrow, pale purple ribbon. A close-up view shows the grade name printed clearly over and over, with A M S, the initials of the Agricultural Marketing Service, stamped occasionally. The grade stamp will appear on every retail cut.

Also purple, but not to be confused with the grade identification, is the round stamp used in federal meat inspection. The round purple stamp shows that the meat has passed the inspection of other federal experts who examine it for its wholesomeness as food. Both stamps are of a harmless vegetable coloring and need not be cut off before cooking.

"Of all our meat-grading services, we consider the grading of beef the most helpful," Mr. Fraser says, "for beef is perhaps the most difficult of all meats for the inexperienced shopper to judge. Also, Americans eat much more beef than they do lamb or veal."

The homemaker who learns the beef grades and their position on the quality scale will also know the grades of lamb and veal, because they are identical. In descending order as to their quality, the five grades of beef sold on the butcher's block are: "prime," "choice," "good," "commercial" and "utility."

Ordinarily, butchers will keep on hand only one of these grades. Less than 1 per cent of all beef produced can meet the requirements of "prime" grade. Consequently, most of this top grade goes to dining rooms and restaurants catering to a luxury trade.

"Choice" cuts are the highest grade of beef available for the most discriminating retail trade. Choice meat has a moderately thick covering of white or creamy white fat. The lean meat is bright in appearance, well marbled with fat. "Marbling" is the way meat experts refer to the tiny flecks and streaks of fat scattered through the lean.

"Good" grade beef is used most widely by those who want quality at a moderate price. The fat covering on this beef is thinner, and the cut surface of the lean shows some marbling of fat.

"Commercial" beef has very little, if any, excess fat. The fat covering is thin, and the cut, lean meat shows practically no marbling of fat.

"Utility" beef has even less fat covering and rarely any fat marbling through the lean. This grade of beef is not satisfactory for oven roasting or broiling, but can be used to advantage in pot roasts, stews and similar dishes. There are other differences in the grades, too, but most of them can be observed only by expert meat graders.

Important to the consumer is the fact that the grade does not reflect nutritive values. Every one of the grades can be a good "buy" if the homemaker knows how to get the best out of it by proper cooking methods.

For example, a top round or rump steak from a choice grade of beef will be tender enough and have enough fat on it to make an excellent piece to broil. But this same steak from a commercial grade would be better made up into a Swiss steak with some added moisture and a lid on the pan to keep in the steam and help soften the connective tissue. Both make equally nourishing food and both have good flavor. But it takes the right kind of cooking to bring out the best in each.

Federal meat grading started less than fifteen years ago at the request of meat distributors and producers. Every year, since 1927, it has expanded. At first beef was the only meat graded. In 1930, lamb and veal were added. Pork is regularly not graded for the consumer trade according to Mr. Fraser, because a large percentage of the pork produced in this country does not vary much in quality.

Today Government graded meat is available in most large cities and in many towns from coast to coast. Government graders are stationed in 27 key meat-packing cities over the country, so that practically every dealer in meat can buy federally graded meat if he wants it.

To show consumers how government meat-grading takes the guesswork out of buying beef, the Agricultural Marketing Service has issued a new bulletin. Copies of "Buying Beef by Grade," Miscellaneous Publication Number 392 may be obtained on request from the United States Department of Agriculture, Washington, D. C.

QUESTIONS AND *Answers*

Head Noises

To the Editor:—When I am where it is quiet, I hear a pulsation in my left ear. Generally it synchronizes with my heart beat, but at times it seems faster than the heart beat. It is particularly noticeable when I go to bed. The trouble has continued for three years, but does not grow worse. Blood pressure is normal for my age (61). Can you assign a cause? It does not bother me much, but just irritates me, especially when I go to bed.

D. K., Texas.

Answer.—Most head or ear noises that pulsate are of vascular origin; occasionally other causes are responsible, anemia, for example. The sounds described may also be related to minor circulatory changes associated with your age, even though the blood pressure is normal. A mild sedative frequently relieves the symptom but the physician's advice should be obtained first. As is suggested, the trouble is fortunately more annoying than serious.

American Facial Measurements

To the Editor:—What are the measurements of the average American adult face in length from the eye to the chin and in width at the widest part.

R. H., Pennsylvania.

Answer.—The face length (really face weight) dimension you ask for is not usually taken. However, we do have a comparable dimension, morphological face height, from the deepest indentation in the root of the nose to the chin. In adult American males this dimension averages 121 millimeters; women measure about 8 per cent less. For the eye level to chin dimension subtract 4 millimeters. The width dimension is a routine measurement known as bizygomatic width, or maximum width across the cheekbones. This averages 135 millimeters in adult American males; women measure about 10 per cent less.

Hemophilia

To the Editor:—The doctors diagnosed the trouble of our 18 month old son as hemophilia. A month later the baby fell from his crib, causing a cerebral hemorrhage from which he died four days later.

I have heard the opinion expressed that regardless of the hereditary factor, it is possible that certain characteristics of a mother and father can combine to produce a hemophiliac son. Is this true? Does hemophilia have to be hereditary?

We would like another child, but are wondering what our chances are of having a healthy, normal baby? We are also greatly concerned over the future of our healthy 5 year old daughter. What are the possibilities that she might be a transmitter of this terrible disease?

T. A., Colorado.

Answer.—True hemophilia is a constitutional disease inherited with much regularity. There is no reason to suppose that it can appear accidentally or sporadically. It is normally manifested only by males, but transmitted by females who themselves do not suffer any ill effects. In this case it appears probable that the mother may be the carrier. Assuming this, there is an even chance that the daughter is a carrier of the tendency. While she herself is safe, she should consider seriously, before a future marriage, whether she wants to pass on this tendency. If not, she should marry with the understanding that she will have no children.

For the present, however, to have another child will invite the same risk you have already incurred: 50 per cent likelihood that a daughter will be a carrier, 50 per cent likelihood that a son will be affected. In each case there is half a chance that a child will be wholly normal. While some risk is involved in all parenthood, most people would feel that the child who had only half a chance was too severely handicapped, and would avoid further childbearing.

Raw Vegetables and Juices

To the Editor:—Recently I bought a vegetable juice extractor and every day I make and drink a pint of vegetable juice.

During four months I have lost 9 pounds. I am not as fatigued as I used to be and I feel generally better. Despite this, will the drinking of a pint of vegetable juice every day prove harmful?

I. R., New York.

Answer.—The juice pressed out of vegetables will contain the water soluble carbohydrates, minerals and vitamins natural to the vegetable in dilute solution.

The water soluble vitamins include vitamin C, vitamin B_2, and riboflavin. Riboflavin is not easily destroyed by oxidation or by heat, and therefore is largely retained in pasteurized or canned juice. Vitamin C and, to a lesser extent, vitamin B_1 are readily destroyed by oxidation. There appears to be an enzyme present in vegetables which changes vitamin C to another substance that has no antiscorbutic properties. This action is prevented by heat. Therefore, pasteurized or commercially canned vegetable juices will actually contain more vitamin C than raw vegetable juices.

Most of the fiber from the vegetable will be left behind and discarded, as will also that portion of the carbohydrate, mineral salts and vitamins which is not soluble in water. The substances left behind are as much needed for promoting health, especially the fiber to prevent constipation, as are those obtained in the fruit juices. Provitamin A (carotene) is present largely in the suspended particles of vegetable juices. Therefore, separation of the juice from the pulp removes a large proportion of

this vitamin. Hence, if one eats a sufficient quantity of whole vegetables, raw in salads or properly cooked, he will be just as well or better off from a nutritional point of view than from taking the juices alone.

It is also an unsafe practice to consume raw vegetable juices, as such juices are likely to have a high bacterial count and may even carry contagious disease germs. In San Francisco, where several cases of typhoid were actually traced to the consumption of raw vegetable juices at food counters, the local health department has prohibited the sale of raw vegetable juices. Pasteurization or modern processes of canning vegetable juices destroy bacteria and harmful disease germs and thus make the juice safe for consumption.

Sleeping with Dolls

To the Editor:—Why do children want to sleep with dolls? Should a child ever, or never, be given a doll to sleep with? If not, how should this situation be handled? If a child has developed the habit of sleeping with a doll, at what age does this naturally stop?

M. F., Minnesota.

Answer.—Early in life the child's activities and desires are directed mainly toward his own physical and mental needs. At about 3 years of age he begins slowly to acquire social consciousness. Still egocentric, he aims to emphasize his self importance by being helpful to others. This is a natural and an innocent indulgence. At this age, too, all objects, animate or inanimate, are endowed with life and all this goes with vital processes. If he is hurt by falling over a chair, his pains are relieved by punishing the piece of furniture. (Adults, under similar conditions, often revert to childhood by violent verbal attacks upon the offensive object.)

To a little girl, a doll is a symbol on which she expresses a series of emotional and instinctual reactions. At first it is merely an object on which the child may exercise motor activity (dressing and undressing, "feeding," bathing, etc.) which constitutes play. As age increases the doll becomes an image through which the child may fulfil her desire to serve. This phase gradually merges with the maternal or protective phase. The doll now must be kept from being cold, or hungry, or alone. Imaginary acts are approved, or condemned, and the doll is praised, or scolded, as the occasion warrants. Unconsciously, it is probably an expression of power.

This sentiment toward the lifeless creature changes gradually as age and comprehension advance. Boys do not generally manifest an interest in dolls except as toys and the detachment usually occurs at about the time that they become aware of their sex. Girls, however, grow progressively sentimental in this respect. In fact, there are many adult women who part with these treasures of their childhood only by passing them on to their succeeding generations.

There is no reason for urging a child to sleep with a doll. Nor is there justification for depriving a girl of her doll if she desire to sleep with it. Most girls stop taking dolls to bed when they lose interest, usually around the age of 10. Girls, who are shy and feel lonely, cling to their dolls until they find more realistic subjects to occupy their phantasies.

Proper Times to Brush Teeth

To the Editor:—For several years we have advised our school children to brush their teeth "twice a day," not designating any particular time. We feel that we can get a better response from children by asking for twice a day rather than three or four times. If we continue to ask for only twice a day, what times would you advise—before breakfast, after breakfast, after the last meal, or when they go to bed?

W. D., Washington.

Answer.—Proper brushing of the teeth may serve two purposes: mechanical removal of debris from the accessible surfaces of the teeth, and stimulation of the gums. The available evidence indicates that certain types of debris may be removed more easily directly after

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meals than at a later time. This appears to be true of certain soft deposits which later harden to form what is known as calculus. During the past year or two there have appeared certain scientific reports indicating that the conversion of refined carbohydrates to acids through action of bacteria in the mouth may be surprisingly rapid. These acids are responsible for the initial phase of tooth decay. In view of the foregoing, it would appear that for maximum effectiveness, brushing should be done directly after meals. Of the periods suggested, after breakfast and after the last meal seem most desirable.

Syphilis and Pregnancy

To the Editor:—During my first pregnancy I was found to have syphilis. I was treated for six months. My baby died when it was six weeks old. I kept on taking treatments for eighteen months. When would it be safe to again have a baby? I do not want to be too old as I am now in the early 30s. Must I continue these treatments until I have had them for two years?

T. J., Texas.

Answer.—A sound conclusion reached by representative physicians is that every woman known to have syphilis should be treated during every pregnancy, provided there are no positive reasons against such treatment.

Applied to the individual pregnant woman, this might be taken to mean something like this. If the woman is under active and consistent treatment for a latent or early syphilitic infection with the arsenicals and heavy metals, that is precisely the time at which she can probably conceive with the least risk of transmitting the disease to the unborn child. To wait until treatment is over before becoming pregnant is not a wise course. Treatment itself is the protection that the child requires, and whether the woman has had eighteen months or two years of treatment preceding conception, or not, she should also be treated during the ensuing pregnancies. It is advisable that conception be allowed to occur, subject to individual indications and contraindications while the patient is under routine treatment, rather than immediately afterward. If and when the patient does become pregnant, whether her blood is positive or negative to tests for syphilis, she should receive, provided her condition warrants it, treatment. The treatment should be begun before the fifth month of the pregnancy, if the child is to have maximum protection. No treatment with agents which might injure the child or cause abortion, and no diagnostic tests like lumbar puncture which might cause miscarriage should be performed. She should be allowed to carry the child because the pregnancy has actual treatment value for her, and because the child can be protected with a certainty amounting to at least 90 per cent by the treatment carried on during the pregnancy.

Sugar in Diet

To the Editor:—Is there any scientific proof that white cane sugar in large amounts is harmful to the liver and pancreas? Does brown cane sugar have the same effect? I've heard that an excess of cane sugar produces a dull, lazy feeling. Is this true or false? What would be the safe maximum allowance of sweets for the average adult for one day? For one meal? Please enumerate a list of food articles (sweets) giving size and weight. I ask this because the usual answer is eat a moderate amount of sweets. What is a moderate amount?

C. S., Pennsylvania.

Answer.—The eating of white sugar, either cane or beet, in large amounts, may place a burden on the pancreas. The pancreas secretes a substance which is necessary to enable the body to use sugar as a fuel food. If the pancreas is impaired or injured, its ability to secrete insulin is also impaired and as a result the body loses its ability to burn sugar.

There is also evidence that excessive consumption of sugar may weaken the protective power of the liver and thereby cause numerous so-called bilious symptoms. Brown sugar has the same effect as white sugar. Eating sugar in excessive amounts may make one feel dull and bilious because of the above reasons.

It is generally recommended that from 50 to 60 per cent of our food should be taken in the form of carbohydrates. Although sugar is a carbohydrate, it contributes none of the nutritionally important protein mineral elements or vitamins which are found in such carbohydrate rich foods as whole grains, fruits and vegetables. Sugar is a very one-sided food, as you will note from the composition of 100 gram portions of sugar, whole wheat bread and milk listed below:

One pound of sugar provides 1800 calories and nothing else. For this reason, the carbohydrate foods which we select should be those richest in vitamins and minerals, such as whole wheat bread, oatmeal, vegetables and fruits. But even the carbohydrate foods which are richest in minerals and vitamins are still low in several essential food substances and must be supplemented with milk, eggs, meat or fish in order to give a balanced diet. Because sugar is such a concentrated food, it has a tendency to sate the appetite for the more nutritional foods and for this reason the maximum allowance of sugar for one day should not be more than two tablespoonfuls.

	Sugar	Whole Wheat Bread	Milk
Protein	...	10 grams	3 grams
Carbohydrate	100 grams	50 grams	5 grams
Fat	...	0.9 gram	3.5 grams
Calories	400	248	64
Calcium	...	50 milligrams	118 milligrams
Phosphorus	...	175 milligrams	93 milligrams
Iron	...	16 milligrams	0.1 milligrams
Vitamin A	...	10 International Units	140 International Units
Vitamin B_1	...	85 International Units	20 International Units

A Vacation in Canada

(Continued from page 296)

will always be met. Nickel is found in Ontario in the Laurentian shield. A canoe-shaped deposit approximately thirty miles long and two miles wide suggests a vast cataclysm of nature when the ore bearing rocks welled up from the earth's center, or when the metal itself, in vapor form like a huge steam jet, impregnated the rocks of this formation.

Another phenomenon is the presence of radium. The finding of this radium is one of the great romances of modern times, a testimony of refusal to accept defeat, and of indomitable enterprise. The deposit is 26 miles from the Arctic Circle. To visit it is a challenge to the adventurous, though the trip may be made by airplane to a steam-heated and electrically lighted mining camp, thoroughly modern in equipment and supplies.

To a scientific mind, Eldorado is a shrine as worthy of a pilgrimage as any scene of triumph of the spirit over material things. It is a triumph of discovery and again it is a triumph of transportation and manufacture that makes the fruit of that discovery available to cancer victims. The fact that cancer is said to be the third major cause of death in the United States gives some conception of the value of this discovery. In terms of dollars and cents it brought down the price of radium from $70,000 to $25,000 a gram. A gram has been described as being enough to stuff the skin of a Boston bean and is the radium content of 500 tons of rock. Radium itself is a glistening white metal about half as heavy as silver. It glows a ghostly blue. The ore where radium is found looks like anthracite coal, and has an average value of $124 a ton. After concentration at the mine, which means the elimination of other bodies through repeated sorting and grinding, the ore, now called a concentrate, has an average value of $2,500 a ton. It is shipped to Port Hope in Ontario where it is refined. The ingenious intricacies of the further recovery and refine-

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ment are well worth the effort to behold them. Port Hope is but a few miles east of Toronto.

We have copper and gold mines in this country, though the romance of their surroundings has not the freshness of recent discovery that is found in Northern Ontario and Quebec. Looking at these thriving mines and mills it is hard to realize that the greater part of this industry has evolved within the past decade and owes its origin to the use of the airplane in prospecting and development.

Timber and its products is another great source of national wealth. Here again the sightseer will be amply rewarded for his enterprise. Huge milling operations, enormous water power developments and almost a million square mlies of forest reserves are equally picturesque and stupendous.

The ebb and flow of world commerce absorbed the products of these and a few more similar major industries. The credits for the interchange of goods cleared through world banking operations and the deficiencies or surpluses of transactions with individual countries were made up or absorbed by the trade relations of the individual countries with others. Now the finely adjusted interplay has been gradually broken down as one country after another has suffered the disablement of war.

Trade with the United States has been drastically upset because of the collapse of this intricate machinery, for it was by applying the credits obtained from sales made to countries other than the United States, that Canada was able to give to the United States so large a proportion of her import business. Canada has increased production of gold and also we have been able to use a greatly increased amount of newsprint and other forest products; but the greater burden of the deficiency even of peacetime purchases from us, over sales to us, remains to be made up, or Canada cannot find American dollars to make the cash payments required for trade with us.

The crushing constriction of the circumstances of war and our own neutrality laws force into bold relief this artery of commerce called tourist traffic. Commerce cannot be a one way traffic. Its reciprocal flow may be likened to an alternating current in electricity, except for the fact that flow is simultaneous in both directions. The volume of flow is regulated by what each terminal takes from the other. In other words, we cannot buy from Canadians more than we can sell to Canadians. Canadians cannot buy from us more than we can sell to them.

It is easy to picture a flow, say, of automobile parts, pork, coal, vegetables, fruits and crude sulfur, balanced by salmon, salt cod, lobsters, furs, newsprint and nickel pigs. It is not difficult to visualize the flow of interest coupons, dividend checks, bills for freight carried, bills for insurance, or the shipment of gold itself. One can also imagine millions of people traveling in their own cars, or by bus and train, stopping here to look at the scenery, going there to fish or hunt, or doing the myriad of pleasant things of a vacation crowd in summer or winter. Human activity, human incidents of tragedy or comedy, are so wrapped up in the observation that it is startling to realize that this vast happy crowd has carried literally hundreds of millions of dollars across an international boundary and has spent it in millions of tiny transactions—a few gallons of gas, a package of cigarettes, a dish of bacon and eggs, a cup of coffee, a night's lodging. These homely human things in satisfaction of personal pleasure or desire are suddenly revealed as international commerce of tremendous importance. It is as in the making of paper in one of the huge paper making machines in Canada where the flow of countless liquid particles, fed through jets in a pipe in the passing of an instant, takes on solidity and tensile strength and almost before the eye has discarded the image of a stream of drops it is looking at flowing band of paper.

Similarly the innumerable transactions of millions of people on pleasure bent is as real a part of international trade as a fleet of steamships laden with wheat. The astonishing thing is the imposing size of the total business when considered as a grand division of international trade. But the abstract appreciation of the size and value of tourist traffic should not blind us to its human quality: it is an enormous aggregate of human

beings with the sympathies, likes, dislikes, purposes, principles and ideals that is encountered every day.

Canada is now spending almost $80,000,000 a month in its war effort. Vivid illustration of the size of transactions involved is given in the statement at the end of July of the Minister of Munitions and Supply that his Government had bought enough cloth to stretch from Ottawa to Berlin and back. Factories for the manufacturing of general war materials are projected and being built at a cost of $222,600,000. Fifty cents of each dollar spent on these factories on capital account will have been spent in the United States; for the purchase of machine tools, 90 cents of each dollar comes to the United States. Almost $800,000,000 worth of orders will be placed in these factories. Thirty cents of each dollar of goods so ordered is spent in the United States for fuel, steel and other commodities.

Few things could show more clearly the interrelation of the two countries as a part of an economic whole, or that the two countries really have been and are in business together in developing the resources of this continent, than this lependence of Canada on the United States for supplies to keep her factories going. Canada's purchases in 1940 are steadily mounting and each passing month shows an increase of 20 per cent or more over the last months of 1939. Canada has increased the output of gold. For the nine months ending September the value was $151,310,628, compared with $134,428,588 in 1939. It is estimated that the gross sales of Canadian pulp and paper products, which go largely to the United States, will in 1940 equal the cost of five big warships, or the expense of equipping an army of almost a million and a half men.

The deficit of sales under purchases of the two way trade between Canada and the United States is steadily growing. It is now expected to be $260,000,000 for 1940. The bottleneck occurs when American dollars fail to balance the purchases of American goods. Increased travel by Americans to Canada is the best way to help Canada that our neutrality laws permit. We would like to hold our peacetime volume of sales to Canada. We would like to have the profit of Canada's increasing purchases of war materials. Canada cannot give us both, anxious as it is to do so, for Canada can only buy from us to the extent that we buy from Canada. For months Canadians have had to deny themselves the pleasures of travel in the United States. It is said that less then 1,000 Canadians will visit the United States this year for reasons other than business. This speaks well for the climate of Canada that less than a thousand persons cannot stand the rigors of its winter. But more significant is the self denial of Canadians in that they are refraining from competing with their Government and their merchants for the American dollars necessary for the purchase of war supplies and for the maintenance of the economic life of the country. The next step recently taken was to eliminate the purchases of luxury items in the trade between the two countries.

Canada with increasing speed is organizing for defense. The 3,000 miles of unfortified border that is our mutual pride, along which our two nations extend, is being made impregnable as Canada itself is strengthened for defense. It is a far better act of National Defense on our part to make Canada strong through trade, than to sink countless millions of dollars in ramparts and trenches. We have undertaken joint action of mutual defense. A strong Canada is our first step in preparedness. Reaching to the East and West, its boundaries lie much closer to Europe and to Asia than ours, and while our route to Alaska is necessarily by sea, it is a point of strength that one flank of it is towards Canada.

The increase in American tourist traffic that was hoped for and for which Canadians had prepared did not occur, and again for lack of American dollars Canadians have had to give up some of their buying of nonessentials from us. Whether or not we comprehend the source of the motivation, some force outside ourselves in the United States so played on our fears and so befuddled our thinking that we not only lost one hundred million dollars diminution in our trade with Canada, but we are now losing an additional unknown amount — of probably equal volume—of an increased trade we might have had.

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THE MIDDLE YEARS

(*Continued from page 266*)

some of the things you've always wanted to do. In this way you can go on living just as richly as you ever did, even if your activity is restricted."

The man had wisdom and character enough to take the doctor's advice. He lived another twelve pleasant, carefree years.

Since unsatisfactory middle age is almost always due to maladjustments, unwise parental handling, or poor discipline in infancy, childhood and adolescence, the best way to have a happy, satisfactory middle age is to have had the right childhood training. But the middle-aged man or woman whose childhood training was unwise and who as a consequence is filled with unreasonable strivings and with anxiety and depression, can be helped to develop a new and a better philosophy and a more skilful technic of living. So much is said of the necessity of learning while we are young that we are inclined to forget that there are many lessons still to be mastered after youth has passed.

It is not always evident to the layman whether the unsatisfactory middle years are due to early unwise handling or not. The evidence is often hard to judge: the parents may have been people of character and intelligence; the obvious elements making up the experiences of youth may have appeared satisfactory. The difficulty may have its roots in an obscure situation, often requiring a skilful psychiatrist to ferret them out.

Sometimes, however, the connection between adolescent and middle age behavior is easily recognizable. There is a certain type of middle-aged person whose illusions are worn thin and smashed flat by collisions with hard reality. He is psychologically bankrupt and looks on an ever-changing, exciting world with unseeing and melancholy eyes. These depressed and depressing people usually lived, in childhood, in a world in which unpleasant realities were met not with effort but with dreams. The dreams were not the sort that might in mature years produce creative writing, or painting, or music; they were the dreams of having the pleasant rewards of labor without its discomforts. In the effortless act of imagining, both time and energy—that should have gone to productive action—were spent unwisely.

When at last these people are grown, they set themselves an illusory and impossible program for living. They "sail for islands in the air" and then thirty or forty years later are left with only their deflated illusions to replace reality.

Another variety of middle-age difficulty still more easily recognizable as deriving from unwise childhood training is that of the man or woman who was so loved, and so carefully shielded by fond parents that he expects every one in the outside world to behave like his tender and loving mother or father. He finds the outside world vastly different from the parental rooftree. People do not always praise for meritorious work, nor always reward just desserts. Sometimes it takes these people years to learn the folly of expecting those with whom they deal to be like loving mothers and fathers, and more years to learn that no matter how well they work, or how hard they try, they will still be disliked by some, and some will be unjust to them. Sometimes they never learn.

It is not easy to overcome this personality defect. It is easier to become bitter and to return dislike for indifference. It is easier to meet hate with more hate; scorn with greater scorn; criticism with more bitter criticism. But although this is the easiest response, it is the most destructive. It saps the energies and depletes the will. In such emotional conflict, life is slowly frittered away.

Preventive medicine has succeeded in eliminating, or controlling, many such diseases such as smallpox, tuberculosis, malaria, yellow fever, typhoid and typhus fevers and has thereby prolonged the average length of life so that more and more men and women are living into middle age and beyond. Medical science is keeping alive a constantly greater number of people between the ages of 50 and 80.

More and more it is becoming the problem of psychologic medicine to eliminate unhappiness in middle age, to make that difficult period rich in satisfaction and to help the middle-aged to a flexibility of mind which will enable them to meet change and new conditions with open minds, still retaining what is good in the old ways.

For what is the use of living these latter years unless they are happy and satisfying? Yet they can only be made pleasant through self-understanding and determination. Instead of feeling that life is no longer worth while, these men and women can be brought to agree with the poet Browning, who wrote:

"Come, grow old along with me,
"The best is yet to be."

IN SEARCH OF A NORMAL LIFE

(Continued from page 302)

recommend treatment to school children. In industry, psychiatry has proved its value in eradicating many problems affecting the personnel of large business concerns. The community marriage counsel bureaus are doing marvelous work by helping to keep homes together. In the juvenile and criminal courts, alleged offenders are now given the advantages of study by a psychiatrist before the court decides on the question of guilt, and before passing sentence on the offender.

Thus, the recognition and treatment of nervous and mental illness have come into a new. The physician not only helps those obviously mentally ill, but he also can help guide the normal person through the five difficult stages of childhood, adolescence, marriage and the experience of raising a family, the period of the change of life and the period of old age.

Mary, Mary . . . (who's contrary?)

How does your garden grow? From the tiniest seed to the fullest bloom it grows with care and protection and encouragement. . . . And, like the tiny seed, your own personal loveliness will flourish if you give it care, protection and encouragement. . . . There is no magic to the giving earth, no magic to a charming appearance. Beauty is there! But the cultivation and expression of that beauty is up to you. A few moments a day devoted to a carefully-considered grooming regimen which caters directly to your individual needs, and you can attain a natural, neat, well-cared-for appearance which is beauty itself. Care, protection, encouragement—and in the garden of feminine loveliness will bloom . . . *Pretty maids all in a row.*

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The TRANSPARENT WOMAN

THE TRANSPARENT WOMAN, now on display in her permanent home at the Museum of Science and Industry, Chicago, is a unique anatomical study in life size, three dimensional form. It is not designed, however, to teach the details of anatomy. Rather it is a dramatic, educational, public health exhibit through which the intricate structure and complex mechanism of the female body may be seen in its entirety.

The exhibit has been presented to the Museum of Science and Industry through the generosity of S. H. Camp of Jackson, Mich., as his contribution to public health education in America.

The only creature of her kind, the Camp Transparent Woman was unveiled four years ago at Rockefeller Center, New York, where she remained on view to the thousands who came to see her. Then she set out for a nation-wide tour visiting principal cities where she was seen by approximately 8 million people. Not only has the public given her their fascinated attention, but she has also been observed and approved by approximately 60 thousand physicians.

The Transparent Woman brings to the dwellers in the machine age an opportunity to investigate intelligently the greatest machine of all. She satisfies our human curiosity about our own internal structure.

Life size, she represents a woman about 30 years old. Her perfectly molded figure is made of a hard, crystalline substance more transparent than glass. Through it, every vital organ can be seen, every tiny vein in the multiple network. These are reproduced in actual color, and in the size and position that they occur in the human body. A system of push buttons permits each organ to be illuminated separately.

During its demonstration, the brain is first illuminated; then the larynx, thyroid gland, lungs, heart, etc. follow in turn. At the close the whole figure stands forth in natural colors, fully illuminated from the base and above.

Through a study of the Transparent Woman, it is amazing to discover just how misinformed most of us are about many elementary facts. The location of the vital organs is a great deal different in actuality from what most people frequently believe.

With a view to improving public health knowledge, and thereby public health, there are widespread movements under way to educate the average man and woman along these lines. Government agencies, both local and national, and public-spirited newspapers are conducting educational health campaigns. Courses in anatomy, the functions of the body, the basic characteristics and actions of our internal organs are generally prescribed in colleges and schools today. The dark ages of shrouding the body's functions in a cloak of prohibitions are well past. Thus, it is timely and suitable that the Transparent Woman should

continue before the public as an outstanding contribution to public health knowledge.

Probably in no other way than through observing this scientific figure can the all-important human internal structure be visualized at a glance. And while it is only the professional medical practioner who can aid us in applying this understanding, we owe it to society as well as to ourselves to become as well acquainted with our own physical makeup as we can.

Twenty years of research went into the creation of the Transparent Woman. Anatomists, physiologists, artists and engineers worked hand in hand to create her. Four transparent men were built before scientists attempted to simulate the complex mechanism that lies within a woman's body. The $25,000 that it cost to create her looms large beside the paltry value of the mineral elements that compose the average human body, as the intricacies of the human body completely overshadow even the most ingenious man-made machine.

The one thing man could not give the Transparent Woman was the life force. Yet she has it in her power to extend the life, health and happiness of human beings, for through her we may add to our knowledge of our bodies. Both the wise, who know that they know not, and the unwise, who know not that they know not, cannot walk away from a visit to the Transparent Woman without a clearer appreciation of the complexities of the human machine, nor without a deeper appreciation of the challenge such complexities present to medical science.

COLDS

At the onset of a cold, the drinking of a glass of cold water containing a level teaspoonful of salt, even repeated several times the first day, often will do more good than the taking of a large quantity of orange juice or soft drinks, Henry M. Goodyear, Cincinnati, declares in the *Ohio State Medical Journal*.

Two tablespoons of strained honey with the juice of one-half a lemon in a glass of hot water, sipped at bedtime, is an ideal drink in the treatment of colds, he says. Honey makes an excellent substitute for the large amounts of sweets often taken.

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BOOKS ON HEALTH

An Exhibit of the Tuberculosis Institute of Chicago and Cook County, Ill.

By the Tuberculosis Institute of Chicago and Cook County. Paper. Price, 15 cents. Pp. 8. Chicago: 1940.

This booklet is a description of how to build an exhibit on tuberculosis. It gives a photograph of the exhibit as completely set up, together with a brief discussion of how the exhibit was developed, with particular reference to subject, content, design, color and motion, these being the fundamentals of a good exhibit. Diagrams and descriptions are given showing the construction and assembling of the various parts of the exhibit and the texts and illustrations used in the various posters in the exhibit are given in detail.

This pamphlet should be useful to all persons desiring to build their own exhibits. The principles of exhibit building set forth are applicable to an exhibit on any topic.

W. W. Bauer, M.D.

Psychotherapy

By Lewellys F. Barker, M.D. Cloth. Price, $2. Pp. 218. New York: D. Appleton-Century Company, 1940.

This small book on mental health by the Emeritus Professor of Medicine at Johns Hopkins University is intended for laymen and practicing physicians. The author defines psychotherapy as "treatment that attempts to improve the condition of a human being by means of influences brought to bear upon his mind." He states that the task of psychotherapy belongs to the well-trained medical practitioner "who in some cases will require the aid of consulting specialists." He stresses the importance of making comprehensive diagnostic studies before concluding as to the treatment needs of any patient, and outlines diagnostic procedure and methods of planning treatment. Methods of psychotherapy are extensively, although necessarily superficially, reviewed. Suggestion, hypnotisms, rest treatments, psychoanalysis and methods directly derived from or related to psychoanalysis, educational methods, religious influence, and group attempts at therapy are all given at least passing notice. Two chapters are devoted to treatment of organic and of functional disorders, with case citations. Application of psychotherapy at various ages of life: childhood, adolescence and old age receives attention.

This is an extremely useful and informative book and will help many to clarify their own ideas with respect to psychotherapy. The emphasis on sound medical procedure, the necessity for a comprehensive understanding of the patient in relation to his environment, and the judicious application of what the author emphasizes as "common sense" procedures in dealing both with the patient's practical situation, and his disturbed states of feeling, can meet only with endorsement. Dr. Barker blows both hot and cold, mostly cold, however, in his discussions of psychoanalysis and its application in psychotherapy. He emphasizes the familiar objection to the presumable "pan-sexualism" of psychoanalysis, overlooking the fact that for at least fifteen years the role of the aggressive impulses rather than the sexual impulses in psychologic disorders has occupied the center of attention in analytic research. Dr. Barker states, in discussing the future of psychotherapy: "Undoubtedly, too, psychologic methods of analysis will become continually more fruitful when we have gone further in the process of weeding out the false hypotheses, the gratuitous assumptions, the capricious interpretations, and the more absurd conceptions of symbols that have hitherto led into false paths." One can only agree with this. However, we must call attention to the fact that much further progress has been made in this direction than Dr. Barker indicates. Only alertness and receptivity on the part of physician, psychiatrist and psychoanalyst to the present day advances being made in both somatic and psychologic aspects of the problems of mental adjustment and disorder, can insure steady progress in the development of psychotherapy. Psychoanalysis is providing essential psychologic data for this advance.

Dr. Barker wisely warns that "the use of psychotherapy, like that of other healing methods by the unskilled is a very real danger. . . ." His book should be read by all physicians, whether directly interested in psychotherapy or not.

George J. Mohr, M.D.

Living

By Thurman B. Rice, M.D. Cloth. Price, $2.25. Pp. 464. Chicago: Scott, Foresman and Company, 1940.

The author of this book, well known to Hygeia readers, is also known to his associates as an unconventional and original thinker who is not afraid to express his opinions whether they agree with the majority or not. In this book he characterizes the usual health and hygiene teachings as "chicken feed" and announces his belief that really healthful living goes beyond eight hours of sleep a night, so many units of vitamins each day and open windows in the bedroom.

Pursuing this philosophy he has written a book which differs radically from other books of its type. He avoids the conventional discussions of anatomy (structure) and physiology (function) except as these relate themselves to everyday living. He is more concerned with having a person eat the foods he likes and learn to like some of the foods he ought to eat, than he is with chaining him to a daily regimen of so much this, so much that and so much of the other to add up to the correct vitamin totals —whether the diet chokes or pleases the patient being beside the point.

On such a basis this book is a refreshing and interesting experience. It should be useful whether it is used as a textbook, or for the better information of intelligent adults who recognize their lack of practical health knowledge. The reader of this book must expect to be startled from time to time by

frank and sometimes explosive presentations of the author's philosophy. In these, can be found the most stimulating passages in the book.

The book is marred by a few inaccuracies, as for example the statement that from 5 to 10 per cent of Americans have syphilis, which is at least unproved and more than likely to be untrue. In all the essentials, however, this is an interesting contribution from a distinctly new angle. Whether you like it or not, you cannot fail to be interested and stimulated by reading it.

W. W. Bauer, M.D.

Growing Out of Babyhood

By William S. Sadler, M.D., and Lena K. Sadler, M.D. Cloth. Price, $2.50. Pp. 350. New York: Funk and Wagnalls Company.

This book is intended as a handbook for parents, governesses and nurses in dealing with the problems of the child of preschool age. The aim is to provide definite direction for dealing with specific problems. The authors state that they attempt to steer a course that avoids the extremes presented by "the stern and regimented types of inelastic schedules for rearing children" advocated a generation ago by the behaviorists, and the "over emphasis of the importance of affording the child a full security in the parental affection" that presumably characterizes more modern methods with children.

The opening chapter discusses the normal child. This is largely a listing of the standard performances of Kuhlman and Terman tests. Included are such dogmatic statements as: "An I. Q. below 100 means that (a child's) mentality is below average, whereas one above 100 means he is mentally proficient, above the average for his age." Adequate qualification or explanation of such a statement is lacking.

Individual chapters are devoted to specific problems, such as enuresis, thumb-sucking, temper tantrums, and to more general problems such as discipline and punishment, discussion of play activities, habit formation, "Emotions and Attitudes," and parent-child relationships.

The authors state in the preface: "This book is sent forth not only as representative of our long personal experience in dealing with these problems but as embracing the accumulated wisdom and experience of the psychologists, teachers and psychiatrists of the English-speaking world." This all-embracing claim, not at all justified by the work, necessitates emphasis of basic lacks in the psychologic background of the book.

The authors seem to have little familiarity with, or tend to ignore, many subjective and unconscious factors in the mental life of the child, and are at times confused. As an instance, a most tentative and not particularly useful conception of play is indicated (p. 200), and this despite the fact that the function of play is rather adequately discussed in literature, particularly in psychoanalytic literature. The authors confuse the reader, and are self-contradictory in discussion of sexual curiosity (p. 293). The discussion of childhood fears and anxieties leaves much to be desired. As a case in point, night terrors are arbitrarily attributed to terrifying experiences, such as accidents, frightening parental threats (p. 255), whereas often such disturbances are based on reluctance of a child to be separated from his parents.

Perhaps the lesson to be learned from this book is that advice as to treatment of symptoms presented by children cannot be offered with assurance except against a background of awareness of the nature of the individual personality of the child. In deliberately relegating to others the task of presenting "the general psychology of the preschool child," as they do, the authors weaken their work, in addition to which their own conception of this psychology would appear to be too limited to represent "the accumulated wisdom . . . of the English-speaking world," and for the satisfactory accomplishment of the difficult task they have set themselves.

George J. Mohr, M.D.

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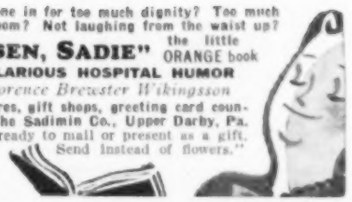

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VISUAL EFFICIENCY

(*Continued from page 275*)

stimulation of the focusing apparatus frequently results in discomfort of the eyes.

In order to discover and correct refractive errors, an adequate examination of the eyes, for near as well as for distant vision, must be made by a competent refractionist. The tests of vision commonly used in schools do not disclose all of the significant defects. Far-sightedness may be overlooked easily and a moderate amount of astigmatism may also escape detection.

Although ocular defects may be described separately, a disturbance in one system usually affects the others. This is particularly true for the muscular apparatus.

The internal muscles have been described as regulating the amount of light entering the eyes and the focus of the images on the retinas. These functions are closely associated so that stimulation of the accommodation (focusing mechanism) is accompanied by a constriction of the pupil. In uncorrected hyperopia (far-sightedness), the accommodation is strongly stimulated and the pupils are usually narrowed. In uncorrected myopia (short-sightedness), however, the accommodation is not brought into play except for very near distances and, hence, the pupils appear dilated. Unfortunately, the accommodation cannot act in a negative direction to compensate for myopia. If the myopia has been uncorrected, or only partially corrected, the accommodation remains relatively unused, so that discomfort may be experienced when the full correction is given.

The focusing mechanism may be deficient for other reasons, such as paralysis caused, for example, by a prolonged illness. Not only is it difficult for the patient to see clearly, but it is also difficult for him to have single vision, especially for close work. He will tire easily, tend to hold a book at arm's length and complain of blurring and of eye discomfort or headaches. The disturbance may disappear spontaneously when a poor physical condition has been corrected. In other cases it may be necessary to use special lenses, prisms, or eye exercises in order to restore comfortable and efficient vision.

If one or more of the external muscles which move the eyes are abnormally attached, or their function is either weakened, or abnormally increased, the normal position of equilibrium is disturbed. In many cases the cooperation of the two eyes (binocular single vision) is impossible and double vision may result because the two eyes are not properly pointed toward the same object. Since this condition may be quite disturbing, the image from the turned eye is mentally suppressed and only one eye is used habitually. When monocular or one-eyed vision becomes firmly established, the individual has given up all efforts to obtain two-eyed vision and, hence, does not have any of the difficulties which may result from inefficient cooperation of the two eyes.

Although children with crossed eyes may read rapidly and well and suffer no headaches, or other visual discomfort, they are usually quite unhappy because of the disfigurement. Squint or strabismus (cross-eyedness) may be remedied by surgical means and often by lenses, prisms, or exercises, or combinations of such methods. The chief result of surgical correction is a more normal appearance of the eyes since it is difficult to re-establish two-eyed vision without the aid of orthoptics, especially if the condition has persisted for a number of years.

When the lack of balance between the extra-ocular muscles is less extreme so that the individual can overcome the condition by muscular effort, binocular use of the two eyes is possible. A healthy human being usually compensates for this type of defect automatically and will rarely be disturbed by it. In many such persons the muscular compensations become so firmly established that it is difficult to demonstrate the defect: no attempt to remove or reduce the defect is necessary. Occasionally the defect may become obvious when the patient is tired, in poor physical condition, or recovering from a severe illness. This group may experience discomfort, which increases with the use of the eyes for reading and other near work. Treatment of the general physical condition is necessary, followed by carefully selected eye exercises (orthoptics). In some cases prisms may be combined with the glasses which correct the defects of focus. This serves to reduce the amount of the muscular or nervous defect to a degree which can be either compensated for, or more easily tolerated.

It is also possible for muscular imbalances to arise as a result of uncorrected errors of refraction. For example, in the case of a moderate degree of far-sightedness, clearly defined images are obtained because the focusing apparatus of the eyes (accommodation) overcomes the far-sightedness temporarily, although considerable effort is expended in so doing. In these cases, a further difficulty arises. Because of inborn nervous connections in the brain, stimulation of the accommodation simultaneously produces an excitation of the mechanism of convergence. The result is that the eyes tend to cross, and other nervous (fusional) excitations become necessary to prevent this excess of convergence and to maintain binocular (two eyed) single vision. When these actions and counteractions take place often and hard enough fatigue and mental confusion commonly result. Thus it can be readily understood why children having this defect may be seriously handicapped in reading and why tests for muscular imbalances should be included with school visual examinations.

The concluding portion of this article will be published next month.

Mental Hygiene ON THE PLAYGROUND

By JOHN EISELE DAVIS

THERE IS probably no more ideal setting in which to give effective employment to the agencies of mental hygiene than on the playground, and there is probably no place in which these wide and deep potentialities of mental health are so little appreciated. A playground experience is the situation par excellence, an infectious situation in which the lessons of the social relationship of mind and muscle may be naturally and strongly imprinted. Here is the place in which the child gradually leaves the world of self and enters into the aspirations and activities of others under the happy and beguiling spirit of play.

Educators have reminded us of the pupil's increased ability to learn while playing. Physical instructors have called attention to the increased learning of motor skills. Psychologists have emphasized the genetic budding of formative attitudes; sociologists and others have been enamoured with the motivation to social adaptations which so naturally develops in the give and take relationships of the playground. The many mental health values of such potentialities have, however, remained outside our perspective. We have failed to see the forest because of the trees.

There are several lessons of high hygienic import which may be learned on the playground and which may serve to vitalize the baseball diamond, the tennis court, and informal games as well, with far deeper significance than is ordinarily associated with the physical acts of play.

The play experience may assist the child to love life rather than to fear it. The ways in which the child approaches and plays games gradually build up the mosaic of acts and attitudes on which he will fashion his approach to the more responsible levels of later life. The child who, through lack of careful guidance on the playground, constantly fears being hit by the ball may possibly develop into the man who, from a sense of insecurity, allows his competitor to beat him in a business deal. Conversely, the timid child, under the happy spell of play, gradually learns increasing control of his muscles. With this growth of self control the child may naturally develop a more confident attitude towards daily experiences and thus he may be able to meet the world in a more positive way. One of the truly important lessons of modern education is that the basic attitude of social confidence may grow in soil in which is planted the seed of motor skills. It is important to realize that play is the life of the child, and that these play experiences are realities in the experience of the boy or girl which stand out as educational forces in the early formation of personality. Mental hygienists call attention to the importance of the child loving life and of reaching through such experimental means toward significant heights of mental as well as physical growth. By placing the child in a confident and wholesome relationship of success, he is provided with the keynote for mental health, education and play; he is given the steps on which he can approach life without fear or subterfuge.

Play allows the child to better understand the world, to expand his body and mind, to form happy associations through acts and symbols, to increase and vitalize his vocabulary through the happy association of words with sparkling acts. There is probably no better opportunity to create healthy symbolic associations than through suitably selected play. The essential fairness and openness of these

(Continued on page 341)

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CRYING IS MUSIC!

By AARON HARRISON

MOST BABIES cry a *c* or a *c* sharp at birth. Although these tones of definite pitches are sustained for only a short time, they nevertheless occupy a portion of the vocal "tessitura" or crying compass. Cries emitted at these precise pitches usually differ in intensity, duration and quality. The average range at birth approximates a quarter tone—half the distance between the adjacent keys of a piano. Starting on, or near, the highest pitch of this quarter tone, the newborn child always cries downward to the lowest degree. This descending scalar progression, though small, usually dilates into a crescendo. Approaching the highest pitch again by a skip, the cyclic process is repeated. At four weeks the compass nears a major second —a whole tone; at six weeks a minor third—a tone and a half; at eight weeks a major third—two whole tones. Yawning, not crying, probably first encompasses the expanse of an octave. Thus, yawning and crying tell the age of an infant with a fair degree of certainty. These observations, depending on the general health of the baby, are determinative factors with foundlings.

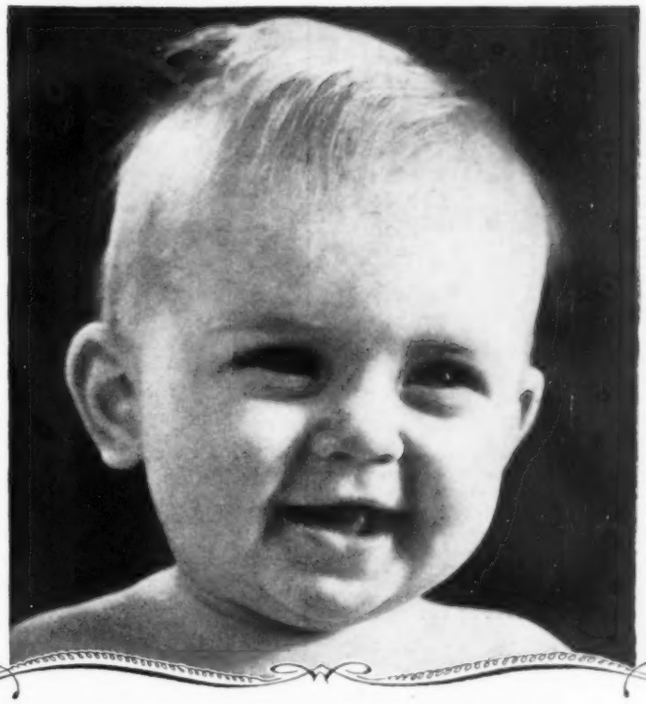
An infant possesses more susceptibility to tones of low pitches, few vibrations, than for those of high frequency. If grave tones sound near it, before the auditory organs are sufficiently developed, the infant receives them as shocks and jars, and exemplifies them in kicks, jerks and quivers. Some people, noticing these peculiar movements, have remarked that the child was listening to the voices of angels. An infant, then, is probably aware of tones—but not as tones—that are inaudible to the adult ear. Acute sounds always require a more mature audible sensitivity; hence, the more acute, the more remote the time necessary for the development of the organs to hear them. This accounts for the entire auditory receptivity of the year old child moving upward in pitch a few degrees, followed by a lull in his hearing development. During this cessation period the child, in spite of

his health, often possesses an irritant distemper. This is presumably caused by the readjustment. Another ascending expansion subsequently follows. Hearing, then, grows scalewise—from the grave tones to the keenly shrill ones.

Vocal growth is somewhat similar but comparatively slow. The initial expansion of the voice begins ascendingly, but soon reaches a peak. The voice subsequently develops a continued expansion upward with a slight extension downward. Another cessation, with apparent preparations for a reverse action of a prolonged expansion downward and a shortening of the range of the upper voice, usually follows—resulting in a complete descending shift of the entire vocal compass. These inert stages customarily clarion a weak voice. But as the compass increases, so the voice adds a lucid, limpid quality.

Newborn babies show a vivid rhythmic sense in their early weeks of life. Every child differentiates decidedly his cries and coos by means of a horizontal or a perpendicular swing. If the swing oscillates regularly, the cry or coo complains or chuckles rhythmically; likewise, an irregularity of swing whimpers or snickers an irregularity of expression. This definitely exhibits a precocious sense of rhythm; certainly it demonstrates correspondingly varied responses to dissimilar rhythmic influences. Innate rhythm, then asserts acclamations through the incipient cries and coos.

An infant at birth is empowered by nature with a scream in proportion to the size of the body and many times greater than the shriek of an adult. He is also endowed with a language of his involuntary impulses—hunger, anger, pain and passion; and similarly with emotions, wherein each cry varies in pitch, power, accent, length and fervor. The emotional aspect is another of the averred musical elements: It is an intensity of desire and feeling that drives forth an utterance. Each cry occupies a separate portion of the general vocal compass, and contains its own distinct motivation—grouping into a series of repeated rhythmic and tonal figures. The succession of these figures, reiterated tones and rhythms, containing changes of pitches and emotional fervor, shaping into definite and distinct de-



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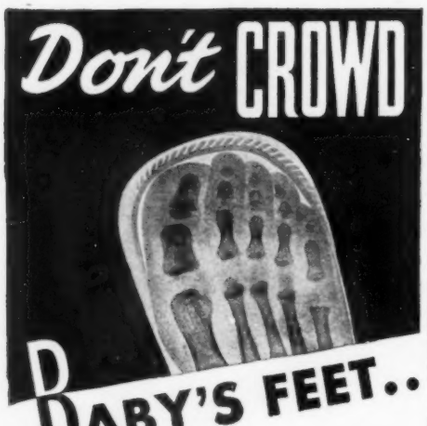

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signs, is sufficiently constant to identify any particular species of cries. The design of an insatiated cry is most apparent in the orderly arrangement of the inherent features—rhythm, pitch and passion—leading to or from its most strenuous utterance or climax.

In addition, a child frequently combines his cries and the expressions of two or more successive desires and passions. By joining two cries—one of the middle and lower voice with another of the middle and upper voice—he obtains a crying range of an octave or more. This seldom occurs before the child is a year old and is also rare in any species of cries. The entire vocal phenomenon consists of three distinct stages: the isolative—a particular cry correlating a definite desire; the agglutinative — amalgamated moods embodying a fusion of different coos and cries; and the inflectional—cries variated by being multifariously stressed. Slight inflections, ornamental and superficial effects by stress appear in each of the first two stages. But, inasmuch as the child's vocabulary and vocal compass are limited, he resorts to stress as an aid of expression; hence, the variations in the first two stages become the basis for the third. Thus, the singular expression—the combination of concurred affirmations, wrangled averments with accorded assertions—and the similarly and dissimilarly variated units are fundamentally rhythmic constituents.

The diminuendo executed in the sleepy cry of a healthy infant beckons a worthy emulation to the most astute artist. This cry combines the mildest dissonant intervals with those of the most pleasing consonant. In it, the child often uses deceptive demeanor — presenting a repulsive attitude to check the flowing continuity of drowsiness and is, therefore, comparable to deceptive musical cadences and progressions. This cry and that of any of the correlated repose species present a shortening of rhythmic motives and lessening of compass; also, a softening and inflection of the voice. Rest, relaxation, or slumber restates its individually isolated rhythmic motive after contrast—slight inflections in the expression—but retains the unity of design, a free form that resolves artfully to the most perfect cadence.

The best music makes the finest adjustment only between the further developed rhythmic sense, tonal concepts and the sanguine passion It is from these embryonic constitutionals—cries and coos sheathed in rhythm, functioning at various pitches, and garlanded by fervent emotions rising at the nascent vocal awakening, birth, that each sentient being obtains a salient service; inasmuch as these musical elements so evidenced and sustained never dissipate during life.

SULFANILAMIDE and ACUTE RHEUMATIC FEVER

Small daily doses of sulfanilamide throughout the winter months proved effective in preventing recurrences of attacks of acute rheumatic fever in 55 patients, Caroline Bedell Thomas, Richard France and Franjo Reichsman, Baltimore, report in *The Journal* of the American Medical Association.

Although the immediate mortality rate from acute rheumatic fever is low, the long range effect of the condition is extremely serious. It has been said that the disease furnishes society with one of its most serious medical and economic problems. It leaves a great majority of its victims with crippled hearts and, therefore, more or less incapacitated for life. It is a disease which has a marked tendency to recur and is one especially of the first three decades of life. The first attack usually occurs after the age of 5 and the incidence of the disease increases until it reaches its peak at about the age of 12. In over half of the cases it follows an acute tonsillitis or some other infection of the upper respiratory region.

While taking sulfanilamide, none of the patients in the authors' study had a major attack of acute rheumatic fever, or an acute beta hemolytic streptococcus infection, which usually precedes an episode of the fever. Among 67 controls not given the drug, there were fifteen acute attacks of rheumatic fever and two streptococcic infections.

Mental Hygiene on the Playground

(Continued from page 337)

play experiences tend to create associations of the nobler and more wholesome sentiments which may be irradiated into individual play experiences, play toys and other paraphernalia. For example, the baseball bat, while potentially an implement for sustaining injury to a player, becomes potentially and definitely associated with "hit the ball rather than a person." In conducting baseball games with most far regressed psychotic patients, I have never seen these mentally sick human beings, who have even lost much of their formal training and understanding, use the bat as a weapon, or threaten a fellow player with it. Early play experiences have established wholesome attitudes which remain while many other normal traits and associations are lost.

Through experimentation, play allows the child to grow in mental health. Stretching the muscles develops an elastic, growing mind. The child is sensitively attuned to the moving and changing world. The bright eyes of a boy meet the sparkle of the grass on the playground; his moving restlessness finds attachment to the quick and inviting movements of the ball. Play, in the words of Will Durant is "The heavenly elan," a heightened experience of shining newness. Educators are stressing as a paramount aim the growth and development of the child in wholesome ways. The playground offers the ideal medium for the physical expansion and the organization of wholesome cultural and mental attitudes.

Recreation, hygienically organized and carried out, helps the child to sustain the feeling of worthwhileness and importance. Conversely, it assists him to overcome attitudes of failure. Psychiatrists are calling attention to the level of sensory integration on which to build socializing, wholesome attitudes of disciplined aggression. It is obvious that the child lays high import on the things he is able to do with his muscles. His most valid coin is a motor skill. In the child's interpersonal relationships, the question "Did he hit the ball?" is far more significant than "Did he know his lesson?" These motor accomplishments boost the confidence of the child and allow him to feel the warmth of a playmate's approval. The expression of the inner self instead of being blocked or thwarted is successful: the child enjoys that deep satisfaction of having gained recognition. As a matter of practical hygienic administration of the playground it is, of course, more important to boost the aggressive nature of the child in the right direction through the many socializing possibilities inherent in the situation than it is to win the game.

The playground satisfies the child's normal desire for entrancing changes. A child's immaturity makes it difficult for him to accommodate himself to unbending routines: He wants something different. Every situation is new in play and the alternation of experience, the rising and the ebbing of the tides of play, produce situations of hygienic value. In the words of the psychiatrist, play is extraverting, it tends to direct the energy of the child from self to outside things. The child requires many changes as through early perambulations he touches life at various points. Activities are spread out and scattered and the ability to focus attention must develop with chronological growth. The dull child who can find extraverting experiences is helped to develop a more healthy personality; the alert child will find in the changing nature and tempo of play an avenue of wholesome release for energy-seeking, healthy expression.

The playground teacher, through suitable selection of activity, may build the physical background for the healthy mind. "Eat and grow strong" is a most common admonition of the mother to her child, while "Play hard to develop big muscles" is often the uncritical advice of playground teachers to their charges. Although the advice of the teacher may be true, it serves to distort the real values and the hy-

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gienic objectives of play. The child impressed by power and might is easily susceptible to "big-muscle psychology." But parents know better: Who in an adult world wants big muscles and what would he do with them? This is the day of mind over muscle. However, play, sensibly selected and carried out, will promote organic vigor and the adage: "A sound mind in a sound body" still holds. Attitudes are still more important than muscles, but a smoothly and happily functioning body will prove a most effective instrument on which to play a symphony of mental health. Physical strength and tolerance promote mental stability and the strong body, all other things being equal, is more likely to house a happy personality.

Play means everything to the child; he accepts it as a most important and thoroughly valid experience. This has deep significance for mental hygiene. Discerning playground leaders see daily evidences of the fact that play is a far more significant and a far more reaching experience than simply hitting or kicking a ball around the field. The growing child is pacing his steps of development in a series of play acts. He chooses sides in the game, selecting playmates who fit into his scheme of attack, and in later life he selects his associates to help him in the more socializing experiences of business cooperation. The relationship between these two experiences, although separated by the mist of years, is none the less clear. Those who play the game considerately in childhod are most likely to preserve the amenities of friendship in adult life. Thus, play literally prepares for adult responsibility, and parents as well as teachers are carrying out the child's play program with this important fact in view.

The playground is the significant place where the child gradually transforms his ideas from playing with toys to playing with people. In the earliest play experiences, the child is attracted by the physical sensations of seeing and handling the play objects. As his play experiences broaden, however, he comes into increasing contact with people and soon becomes conscious of interpersonal relationships in which the rights of others claim consideration. He begins to find satisfaction from the recognition which his mother, father, brother, sister, teacher and playmates give him for accomplishments in play, and in many other pleasant ways he feels the impact of social and socializing adjustments. All the while he is advancing from the low level of sensory integration, of "touching the object," to use Adolf Meyer's illuminating expression, to a social level in which he experiences social growth which so naturally ensues from the give and take of the playground.

The conception of play as a purely physical experience has clouded the perspective of its mental health value. Modern parents, teachers and playground leaders are looking on recreation as a means of developing personality, as well as a happy instrument for stronger bodies. The child who plays, lives in all the fulness of life. He gives expression to his muscles and to his mind. He gives expression to his slowly developing social appetite and to a synthesis of all that goes to make up that elusive characteristic called human personality. It is this rare combination of the body, mind and spirit so naturally and effectively brought forth in play and directed into social usefulness, increased understanding of self in relationship to others, which gives play its deepest hygienic significance.

Here are some sound rules which will help you get the most out of your recreation:

FOR THE CHILD:

(1) Find the game or exercise which you really like.

(2) Do not play to the point of exhaustion.

(3) Do not think you are supposed to win every game, or that you should defeat every competitor.

(4) Learn to get fun out of team play.

(5) Discuss your failures with the play counsellor.

(6) If you possess a "too forward" attitude in play, try to get the other fellow's point of view. Learn to realize that you are not the "whole show" and that you will be more popular if you do not try to keep the limelight all the time.

(7) If you are inclined to be timid, develop some skill and keep practicing. You will find that as you gain in skill you will have more confidence and feel more like taking

your own part and asserting yourself. Talk to your play counsellor about your fears.

(8) If you are inclined to be touchy and quarrelsome in play try to improve: Be a good sport. Talk these things over with mother and dad. Maybe a little more rest will help.

(9) Try to play in a group. After you get used to it, you will find it more fun than playing alone.

FOR THE PARENT:

(1) Insist that your child be taught some sport which, suited to his ability, will have carry-over values so that he can continue it in later life.

(2) Teach your child the importance of stressing cooperation, rather than combative competition in play. Help him realize the importance of conceiving his play partners as friends, rather than enemies.

(3) Keep a check on the nature and extent of the child's play activities, as well as his other educational activities. Your child's play provides his most effective education.

(4) Help the child to face reality in play, to overcome alibying.

(5) Realize that the child's mistakes in play may be largely explained by his immaturity. Do not expect him to have adult objectives or points of view.

(6) Do not expect the child to play well but to play hard, to experience many falls and tumbles.

(7) Make your child's play an expressive and expansive activity, free from chilling don'ts and admonitions.

(8) Realize that the most effective manner in which your child will face life and be conditioned for it is through the make-believe situations he builds in play. Therefore, make his play soundly and wholesomely educational.

(9) Make the play of the child child-centered. Children like to feel that they can have their say. Consult them about their play, get their ideas, allow them to feel the thrill of responsibility. Self play is real to them; they look on adult made play as frequently tinctured with artificiality.

(10) However, teach the child to accept necessary restraint in play,

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to have regard for the rights of his playmates, parents and teachers. Emphasize the zest of being helpful.

FOR THE PLAYGROUND LEADER:

(1) Do not be too fussy about the game. Let the child have fun.

(2) Do not hold too much to rigid rules; allow the child to explore and experiment.

(3) Winning is not the sole purpose of the game. All children cannot win. Set sensible objectives, based on the ability of the child.

(4) Teach the child to help his playmates.

(5) Do not allow the child to take part in games for which he is not fitted. Allow him to gain satisfaction.

(6) Create happy and infectious situations through play. Do not let play become too serious.

(7) However, create the desire in the child to do his best.

(8) Give the child recognition for accomplishment.

(9) Do not require too much concentration on the part of the child. Let him "fool around."

(10) Give the child a chance for advancement. Let him feel the thrill which comes from increasing control of his body and environment.

(11) Teach the child that "muffing" the ball does not necessarily mean losing the game. Courageous and sincere effort are important steps leading to mastery.

(12) Teach the child the necessity and the fun of order. Have a definite program based on the child's interest and capacity and carry it out.

(13) Find and develop humor in play.

(14) Accept the child as a growing animal; accept play as an expansive process to keep in time and tune with his development.

VITAMIN C AND WOUND HEALING

Vitamin C deficiency may be a factor in the failure of some human wounds to heal, Charles C. Lund and John H. Crandon, Boston, declare in *The Journal* of the American Medical Association as a result of investigations in which one of them went on a scurvy-producing diet and subjected himself to experimental wounds.

For four and one-half months, one of the authors went on a diet to produce scurvy, which results from a deficiency of vitamin C. Three months after the diet was started an experimental wound was made on one side of his back. No difficulty in wound healing could be demonstrated. Shortly after five months the first sign of scurvy developed and although there was slight lassitude and ease of fatigue in the fourth and fifth months, marked fatigability began only in the sixth month.

At exactly six months a second incision was made in the corresponding position on the other side of the back. Considerable difficulty was encountered in suturing this experimental wound, a condition which had not been encountered in the first wound. However, it was finally sutured and seemed to heal.

"The cutaneous (skin) sutures were removed on the sixth day and adhesive strips applied to protect the skin from tension," the authors say. "On the tenth day the wound was reopened and as soon as the skin was divided it was found that the tissues under the skin had not healed at all and that the wound contained a firm, dry blood clot."

The clot was scooped out and the wound was then sutured and the physician given vitamin C by means of injection into the vein. This was repeated daily for the next ten days and the wound healed promptly at this time. At the end of the second ten days another incision was made across the area of the healed wound that had been pulled apart during the previous operation. This revealed normal healing.

The two men declare that "at just what point between three and six months delayed healing begins we cannot say."

The two men say that a careful study of the vitamin C status of all surgical patients is valuable.

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enjoy your program DOCTORS AT WORK very much that I wish it were ... broadcasts ... we could have ... for rural ... ve opportun- ... he free use of ... try ... fine and ... h closer ... are really ... ening ... It is so ... we hear ev... ever- ... but WORK ... worth ... Your ... unquestionab... informative ... not only a li... sane protecti... cultural chara... may com... for- ... gratef... be thank ... broadcast on Wednesday evenings. The acting ... is superb, the doctor's simple, truthful, ... unassuming ways; the charm of his nur... couraging, self-sacrificing. ... performance was note... joyed by us. ... I am following your Wednesday night ... with great interest and want you to ... and of appreciation for the fine ... you are giving to the ... need of this sort ... delightful program doing for us. ... insight ... Your programs are worthwhile, ... and enlightening. They make ... preciate our own physician as wel... medical field wh... to keep America ... S AT ... ns Park ... ive, ... ch ... My ... mily and I ... st interesting ... ach Wednesday ev... much indeed. ... ar... ever si... this pr... istic th... to it. ... up the g... to the a... I think ... gives th... into what ... ay I ... did ... progr... to ed... eat b... wit... rson ... ope ...tinued

DOCTORS at WORK!

Continuing with the dramatic medical series, DOCTORS AT WORK, the American Medical Association and the National Broadcasting Company present the story of Tommy Riggs, young American physician. Broadcasts are at 10:30 E.S.T. each Wednesday evening (one hour earlier C.S.T.; two hours earlier M.S.T.; three hours earlier P.S.T.).

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The germs, viruses and the malignant diseases: how the laboratory searches them out.

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X-ray and radium in the diagnosis and treatment of disease.

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About aviators and their passengers: how health is protected for those who fly.

April 23: **THE BIG RED SCHOOLHOUSE**
How modern schools safeguard the health of children.

April 30: **BABY'S BIRTHRIGHT**
Healthy babies: how to care for them.

Where Will Your Children Learn About Sex?

By JOHN NEWTON BAKER

THERE IS PERHAPS no subject more universally interesting than sex. There are few subjects which can contribute as much to the art of living. There is also perhaps no subject with as much opportunity for neglect and misinterpretation. This neglect and misinterpretation constitute a challenge to modern society.

However, it is encouraging to realize that one need no longer debate the need for sex education in secondary schools. By sex education is meant: Education which treats in a unified manner the psychologic, physiologic, and sociologic phases of sex. Further, it is education which relates all these phases to one's own personality and thus contributes significantly to everyday living.

A major criticism of sex education in secondary schools is that there is no definite age or grade when sex teaching might begin. Certainly there are few persons so bold as to place a finger at any point and say: "Here is the place for sex education to start." Those persons believing in sex education in high school do not attempt to do this. They merely point out that high school is assuredly not too far down our educational scale to have such courses. College courses in sex education serve a purpose, but 80 per cent of America's youth does not attend college.

Current controversy, then, is related to the "how" rather than the "why" of sex education.

During the school year 1939-1940, high schools of the 48 states were surveyed for information relative to the status of sex education in high schools in each state. Questionnaires and letters were sent to all state departments of education. Also, representative high schools throughout each state were directly contacted by letter. Personal letters were written to instructors, supervisors, regional health agents, private physicians, lecturers and other persons in each state inquiring more in detail about actual procedures used in courses and programs of sex education.

Included among questions designed to indicate the ranges of attention given sex education in the high schools of America were queries regarding: (1) types and technics of instruction; (2) the role of the teacher; (3) place and name in the school program; (4) segregation of sexes; (5) causes of failures; (6) state and local approaches to sponsorship of sex education; (7) benefits of sex education, and (8) plans and prospects for future program development.

On the basis of replies received from 46 states, the writer compiled the map shown below, which is a key to the type and amount of sex education offered in American high schools today. From this map it is evident there are three large categories into which the states fall. These categories, and the states composing them, follow:

Instead of the "ayes," the "nos" have it. Here we find either definite opposition, or little opportunity for initiative. Generally, school officials who sincerely feel that the time has not yet come for introduction of sex education into high schools of their states compose the

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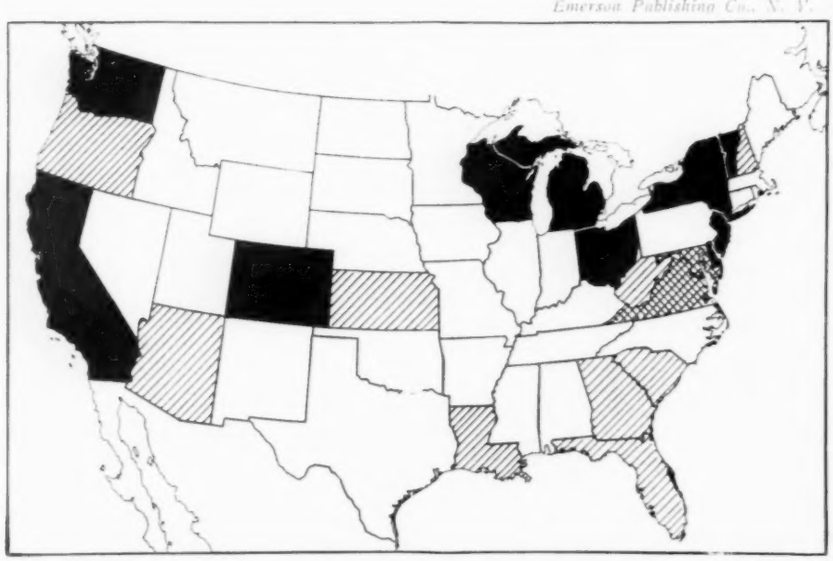
Attention Given Sex Education in High Schools:
Encouraged on a State-Wide Basis
Some District-Established Courses
Little or No Attention Was Given
Did Not Cooperate in Investigation

Backward EYES make a Backward Child

Does your child see things as they actually are or is he handicapped by missing part of what goes on around him? In school, for example, if he has difficulty in seeing the blackboard clearly and distinctly, he will lag in his work, lose interest in his lessons. *He* cannot tell you the real reason, because *he does not know.* Only competent examination can reveal the truth. To be sure that your child's vision is correct, have his eyes examined. This is one of the most important steps you can take to guard his future, his health and happiness.

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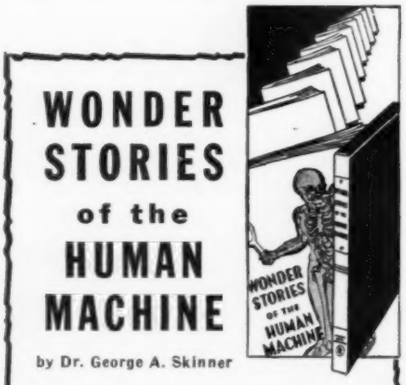
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chief opposition. Also, the belief that sex education is a primary function of the home rather than the school seems to prevail. At best, there is a disregard of the subject, and whatever attention may be given is sporadic, the result of isolated inauguration rather than an integrated approach.

The 27 states in the above category are: Alabama, Arkansas, Connecticut, Idaho, Illinois, Indiana, Iowa, Kentucky, Maine, Massachusetts, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah and Wyoming.

In the states composing this group there has been little active state promotion of sex education, and yet courses in the subject have been developed in various sections of the states. There is no objection to this development by state departments of education, but neither is there any particular approval. Classes range downward from excellent courses to underdeveloped units.

In this group are nine states: Arizona, Florida, Georgia, Kansas, Louisiana, New Hampshire, Oregon, South Carolina and West Virginia.

The third range of attention (shown in black on the map) is that of state-wide encouragement by the state departments of education. Through formulation of outlines and objectives of sex education units or classes, plus the lending of a sympathetic ear to the inauguration efforts of individual schools, effective sex education is being developed and furthered in the 10 leading states: California, Colorado, Delaware, Michigan, New Jersey, New York, Ohio, Vermont, Washington and Wisconsin.

From these 10 states now actively promoting sex education come many comments indicative of the best ways to inaugurate effective sex education. These comments throw light on hitherto questioned benefits and may point the way to sound, sane sex education. These comments may well be considered by school administrators now planning the inauguration of sex education, by parents interested in securing the benefits of such instruction for their own children, and by a general public in sympathy with the problems and needs of its youth in this especially important field of education.

Many and varied are the mantles under which sex education arrives in high school. It may be through the sociology course, where problems of the family normally receive consideration and where the topic of sex education is never out of place; it may be in biology, beginning with a study of animal anatomy and proceeding to study of human beings; or perhaps in home economics, where there is informality which permits excellent instruction along this line; again, it may be found in physical education, where the same informality exists and where high enrolment enables teachers to reach a large percentage of students; or it may be found in social hygiene, a newcomer to the scene but a class which seems to hold much promise for successful sex education. Along with these major instruction types are often found the technics of special lectures, visual aids, question boxes and the use of current magazines and pamphlets.

It is not the writer's purpose here to discuss or report the pros and cons of each of the above instruction methods. They are mentioned as indicative of the way in which high school youth of today is receiving sex education and the choice of one or more technics is always dependent on local circumstances.

Opponents of sex education "shudder" at the thought of this subject in the hands of unqualified teachers. Apparently they do not recognize that advocates of sex education in high school do not want sex education in the hands of unqualified teachers. Under no conditions would they allow this. The strongest plank in their platform calls for qualified teachers above all else.

In the securing of qualified teachers, the items of character, personality, training, presentation ability and attitude were considered especially important. In any educational scene the influence of the teacher weighs heavily on final results; in this area of education a teacher's resources must be examined with unusual care, for often the lasting impressions are dependent as much on the manner of teaching as on content taught.

Strangely enough, there is a surprising incidence of successful sex education under a variety of names which refer not at all to the word "sex." Among the most widely

used names are: Marriage, Health Education, Social Hygiene, Family Arts, Pre-Parental Education, etc.

The attitude on the part of many educators seems to be that doubtful implications arise in the minds of teachers and students if a course or unit is labeled "Sex Education." However, there is an indication that within a few years this term will become acceptable and free from any undesirable mental associations.

The same persons who favor sex education under a multiplicity of other names favor it as a part of another course, while those who feel that "Sex Education" is a satisfactory title are generally in favor of a separate course.

The sharpest division of opinion on this matter seems to be between students and teachers, rather than among teachers and school administrators. Reported student opinion favored mixed classes for instruction because "in that manner unnatural emphasis is avoided." Teachers and administrators, however, pointed out that "through segregation we get improved attention and avoid embarrassment."

Against the advantages of state influence and better coordination are weighed the inadvisability of beginning any program when the stage is not set, and the impossibility of being able to obtain qualified teachers to handle state requirements.

If state sponsorship is desired, then generally this sponsorship takes the form of establishment of teacher training courses, or suggestions to teachers on method and course content.

Regardless of source of sponsorship, there was emphasized, in 90 per cent of the replies, the necessity for a sound approach. Basic promotional work through conferences with parents, specially prepared press releases, formulation of objectives and enlisting of community support are essential for a sound program.

Although the inauguration of sex education in high schools met very little reported opposition, often there was actual opposition which was well founded and which always required intelligent counter currents to successfully balance it. The opposition came from: (1) parents, (2) within the school, (3) religious organizations, and (4) the residents of the community.

The point which received more emphasis than any in this matter was that when inauguration was preceded and accompanied by a sound introductory program, the opposition from the above groups changed to tolerance and later to approval.

The experience of states with successful programs of sex education in high school was always the story of a well-rounded program. The sociologic, psychologic and physiologic aspects of sex all received attention. When one or more of these phases supplanted another, a balanced program was not achieved and results were not generally satisfactory.

Quoting from the writer's "Sex Education in High Schools," it may be noted that the major benefits are: "(1) correction of the misinformation of youth; (2) aid to parents who need special teaching technics and basic knowledge in this field; (3) supplementing instruction given by intelligent, progressive parents; (4) lessening of venereal disease among youth of today and tomorrow; (5) lowering illegitimacy; (6) equipping boys and girls for healthy, moral, satis-

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Taking the Child to the Dentist, by William M. Gardner. 4 pages. **5 cents.**

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fying lives; (7) lifting the black veil of ignorance from a force as normal as breath itself, thus helping to avoid frustration and perversion, and (8) above all, training the child of today in such manner that tomorrow's children will profit thereby.

"Not that sex education in high school is a panacea for all these situations, but properly directed sex education in high school acts as a reinforcing agent for good sex education wherever found.

"A complaint often made is that by the time adolescence is reached it is too late to correct inadequacies. This may be true to a certain extent, but in many schools inadequacies are being eradicated and accurate information is replacing misinformation. These are basic reasons for the existence of high schools and basic reasons why high schools are good media for sex education."

Today, all boys and girls attend school seeking to equip themselves for the vital present and the unknown future. How to live, how to make a living, how to behave in society, how to achieve the good life—all these are more or less definite goals in the mind of youth.

Surely integrated instruction about the body—the instrument by which we live and by which new life is originated—is one of the most important considerations for the schools of today. Fortunate it is that our high schools are now realizing this and meeting the challenge.

SO YOU WANT TO FLY!

By CHARLES R. GLENN

MOST YOUNG MEN between the ages of 20 and 26 years, inclusive, wonder whether or not they can pass the physical examination to become a pilot in the United States Army. The physical examination for the flying cadet is done at all of the regular Air Corps stations by specialists known as "flight surgeons."

In view of the recent demands for trained personnel, due to the unprecedented expansion of the army, and the associated increase in the Army Air Corps, there are many opportunities for young men to take flying training as flying cadets. When a flying cadet graduates from the army training center, he is commissioned as an officer in the Air Corps Reserve.

There are three classes of men being trained for duty with the Air Corps. If an applicant does not meet the requirements of Class 1-A Pilot, he may be placed in the category of Class 1-B for later training, or for training as either a navigator or a bombardier. Still another class of men are being accepted by the Air Corps for training in meteorology and are on a non-flying status, providing their educational qualifications meet the requirements.

Early in the World War I it was found that the men who returned from over the lines were of a definite type. Those who were lost over the lines belonged to another type. The English and French set up a physical requirement for their aviation department. By the time the United States entered the war, the Medical Department of the United States Army had profited by the experiences of the Allies and organized a rigid set of requirements which were designed to select the most likely applicants for the aviation section of the Signal Corps, which since has become the Air Corps.

During the past twenty-five years, by careful study, these requirements have been altered, improved and restricted to meet the changing conditions in aviation, until the present physical examination was developed. It is now required for any one who goes into the air. This physical examination is the most rigid that any one can take. When you have passed this examination, you can pass any physical examination.

The physical examination is not only designed to select the applicant who appears to be in excellent physical condition, but also to measure the reserve which the applicant has. His entrance examination is just the beginning, for the flight surgeon continues to re-examine him

every six months after his training has started. This re-examination is to insure the government that the recruit stays in as good physical condition as he was when he was accepted as a Flying Cadet.

Man depends upon the accuracy of his visual perception for his contacts with the outside world in most instances. Thus, the flight surgeon, in examining the prospective cadet, breaks down all elements of vision and examines each one separately. The applicant is required to have not less than 20-20ths vision in each eye. The reason for this acuity of vision is obvious. When a man gets into an airplane and starts moving at a rate of speed the present airplane travels, his visual perception must be acute.

The field of vision is tested to be sure that all the areas of his eye are perceiving equally. The color sense is examined to be sure that there is no distortion of color. The muscle balance is checked to be sure that there is no tendency to see double, for over long periods of flight fatigue impairs this muscle balance with disastrous results. By measuring this muscle balance, visual acuity, field of vision and color sense, a definite indicator of the normal for that person can be determined. A re-examination with different results means fatigue or staleness.

Special and complete examination of the ear and its accessories is made to insure that the balance of the ears are equal. When a person has a small opening into his ear, or a small canal, known as the eustachian tube, from the ear to the throat, and sudden changes of atmospheric pressures occur, as do occur in flight, one or the other of these openings close, causing pressure on each side of the drum to be unequal. This causes acute pain in the ear, or rupture of the drum. Applicants with unsatisfactory ears are disqualified.

The nose and throat are examined carefully for obstructions that might cause interference with breathing at high altitudes. Any obstruction of the nose of over 40 per cent, or any disease of the accessory sinuses of the face, is cause for rejection. As in the case of the ear, altitude changes affect the lining membranes of the nose and throat, causing the damming up of secretions in the accessory sinuses, bringing about acute pain and inability to concentrate on flying. When an airplane is moving at the rate of 300 miles an hour, all attention must be concentrated on the business at hand.

In the examination of a cadet, the heart receives a minute survey. It has been found that the person who has any circulatory disturbances comes under the same category as the man with the blocked nostril. The sudden changes in atmospheric pressures, from the ground to an operating altitude and back, are such that any one with an abnormal heart would be a menace, not only to himself but to anyone else who was in the ship with him, or any adjacent ship in formation. A normal circulatory system is required.

Equally important in the examination is a complete study of the chest and lungs. An x-ray is used to check the physical findings. Any disease of the respiratory system, chronic in nature, is a cause for rejection.

An examination is made also for any deformities, fixed joints, or diseases of the bony structure. In flying, coordination is more essential then in any other occupation. When an applicant is limited in the motion of a joint, arm or leg, with poor coordination or malformation, he is disqualified.

A table of standards has been made for height and weight. People below 64 inches and over 74 inches in height and over 200 pounds in weight, do not fit into the present day training airplane. The plane is designed for the average person. Over a period of years it has been found that so few people fall outside of these limits that redesign of an airplane especially for them would be economically impractical. All in this category are rejected.

A careful check of the urine and kidneys is also made. Any disease of these organs is not compatible with flying.

If you are a normal, young American who has the proper educational requirements (two years of college or equal), see 20-20ths in each eye without glasses, have normal ears, have a normal nose and throat, have no disease of the heart and lungs, have no deformities or ankylose joints, have a normal excretory system and are in the proper age group, your chances of passing this physical examination and becoming a Flying Cadet are excellent.

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Medical News

OF THE MONTH

Gout Is Fairly Common

"Contrary to general belief, gout is fairly common in the United States but it is frequently unrecognized," Philip S. Hench, Rochester, Minn., declares in *The Journal* of the American Medical Association. "Most patients with gouty arthritis (inflammation of a joint) have their disease for several years and endure a number of attacks before a correct diagnosis is made. This is unfortunate because, of the various articular (joint) diseases, acute gouty arthritis is one of the most responsive to treatment."

Dr. Hench points out that gout and gouty arthritis are not synonymous. The latter is merely the dominant symptom of gout. He says that gout is a chronic disease which is not cured when the attack is ended, but that treatment must be continued indefinitely in an attempt to prevent or postpone the return of symptoms.

Danger from Indelible Pencils

The danger of wounds from indelible pencils is pointed out in the Annals of Surgery by M. L. Mason and H. S. Allen, Chicago, who report two instances of poisonous reactions from the dye of these pencils.

The dye of all indelible pencils is toxic (poisonous) but in varying degrees. Black is the most harmful, followed in order of decreasing toxicity by violet, blue, brown, red, yellow and green. When introduced into the tissues the dye at once begins to dissolve and leads to a breakdown of the adjacent cells. As it is carried farther outward all tissue in its path is involved. An entire finger may be involved. Minor injuries may heal spontaneously within five or six weeks, but if the dye has penetrated deeply, months or even years may elapse before healing is complete.

Symptoms of the poisoning may be few. At the time of the injury there is some pain and swelling of the surrounding tissues for about an hour. As the dye becomes more widely diffused the pain may recur. General symptoms, such as headache, malaise, loss of appetite, stomach and intestinal upsets may or may not occur; they may come on only several weeks after the injury.

When possible, all tissues stained by the dye of indelible pencils should be cut out at once, and the wound should be sutured. The lead should never be picked out with forceps, as this breaks it up and scatters bits of the dye throughout the tissues. However, in cases in which bones and tendons are involved, complete removal of involved tissues may be impossible. In such instances the wound should be left open to heal. At times the effect may be so severe that amputation of a finger is necessary. The authors recommend the administration of dextrose (a form of sugar) and a diet rich in carbohydrates.

Supervision of Adolescents

The customary setting of an arbitrary upper age limit of 12 years for patients of the pediatrician (specialist in the treatment of children) should be abandoned, Samuel Goldberg and Nathan H. Einhorn, Philadelphia, declare in the *Pennsylvania Medical Journal.* The pediatrician who has come to know the young patient throughout his childhood is the logical person to help the adolescent in dealing with the many problems affecting growth and development encountered at about this age.

"The pediatrician should be prepared to study these problems with the aid of the psychologist, the endocrinologist (specialist in the study of internal secretions) and the gynecologist (specialist in the diseases of girls and women)," they say. "With his full knowledge of the child's complex organism, nutritional difficulties, temperament, heredity, environment, habits, social complications and adjustment periods, he should be admirably prepared to guide the child through this difficult period of life. It is only after such an adjustment has been accomplished satisfactorily that this now mature person can be turned over to the internist for further care and guidance in the next clinical age designated as adult life."

Army Creates Civilian Boards of Physicians for Epidemics

A Board of Civilian Physicians has been established by the army for the purpose of investigating influenza and other epidemic diseases in the army, *The Journal* of the American Medical Association reports. Discussing this action, *The Journal says:* "Unquestionably the creation of such a civilian advisory board will give to the fathers and mothers of this country a new confidence in the efficiency and watchfulness of the Medical Department of the United States Army."

Amebiasis in Children

Amebiasis (infection with amebae, minute animal organisms some of which are parasitic to man) occurs with sufficient frequency in infants and children to warrant its consideration as a possible cause either of acute abdominal conditions or of vague, irregular stomach and intestinal symptoms, Katharine M. Howell and Elta W. Knoll, Chicago, declare in the *American Journal of Diseases of Children.*

While there is a widespread belief that amebiasis in children is rare except in the tropics, the authors state that it can occur in infants and children of any age in any locality. They believe that the incidence of the condition has increased in children as well as adults since 1934. It is contracted through contact with an amebic carrier, and a low standard of living is apparently a contributing factor to infection.

"Of the 408 children and infants who were examined, 13, or 3.18 per cent, were infected," they report. "During the same period, 1,044 adult patients were examined, of whom 55, or 5.2 per cent, were found to have amebiasis."